

6 Edm
Book

A LANGUAGE TEST FOR CHILDREN BEGINNING
SCHOOL AND AN ENQUIRY INTO LANGUAGE
CONTAMINATION AT THIS LEVEL.

THESIS

submitted for the Ph. D. Degree

by

C.S.v.d.Westhuyzen, B.A., B.Ed.,

University of Cape Town.

August, 1947.

The copyright of this thesis is held by the
University of Cape Town. Reproduction
of the whole or any part may be made for
study purposes only, and not for publication.

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

FOREWORD.

In 1937, when conducting an investigation into VOCABULARY ATTAINMENT AS A MEANS OF DETERMINING THE MOTHER-TONGUE OF SCHOOL ENTRANTS IN THE CAPE PROVINCE, the extent to which both Vocabulary and Idiom of one language were influenced by the other led me to the conclusion that a thorough investigation into the extent of this "contamination" might be of value to teachers of both English and Afrikaans who were anxious to promote a high standard in both languages.

This contamination has, of course, long been recognised, not only by teachers, but by all who are interested in the standard and development of the languages. While a good deal can be said for the appropriation of words by one language from the other, the actual appropriation of construction and idiom which are foreign to the language concerned is, it is agreed, not in the interests of exact expression in one language or the other.

The teacher of either language who is setting out to eliminate what may be termed the barbarisms must make as complete a study as possible of the phrases, idioms and expressions which corrupt the language and must therefore be eliminated at the earliest stages. It is with these objects in view that the investigation described in the chapters that follow, has been conducted with school beginners⁽¹⁾ as test persons.

In order, however, that the position of both languages in South Africa to-day should be made clear and add force to the reasons for which the investigation was undertaken, the first chapter is devoted to a brief review of the events and opinions which make such an investigation of importance and value to the South African educationist.

(1) These pupils are referred to as pupils of the age group 6 plus years, or simply as school beginners. Children between the ages of 6 and 7 were tested. In most cases they had already been to school for some months.

My thanks are due to Professors H.A.Reyburn and J.F.Burger for their interest in the investigation and their encouragement during the years that I was busy collecting the materials for the tests and for their valuable advice, the latter in connection with the introductory work and the former in the handling and interpretation of the results; to Professor W.F.Grant under whose supervision the setting out and writing was done and who kindly offered constructive criticism, encouragement and guidance; to Mr.N.P.van Wyk Louw who read through the introduction and as a result of whose suggestions changes were made in that part of the work; to various other Professors and Lecturers of the University of Cape Town for useful hints; to the various Inspectors of Schools by whose courtesy I was allowed to test pupils in their Circuits; to the Principals for the facilities for testing granted at their schools; to the Kindergarten teachers who helped to select and classify the pupils and who gave valuable information about the pupils; to Miss May van Dyk, of the Training College, Graaff-Reinet, for drawing and colouring the pictures; and to any others who gave assistance and advice.

A special word of thanks is due to my wife who helped with the handling and checking of the results, who did most of the typing, and reproduced the sets of pictures which were handed in with the thesis.

CONTENTS.

CHAPTER 1.

INTRODUCTION.

	Page
The British Occupation of the Cape.	1.
(a) The Influence of English on Afrikaans.	1.
Loan-words and Anglicisms.	3.
Purity of Afrikaans threatened from another quarter.	5.
Afrikaans Societies appealing to Afrikaners to keep the language pure.	6.
Dutch Reformed Church anxious to help.	7.
(b) The Influence of Afrikaans on English.	7.

CHAPTER 2.

(a) THE AIM OF THIS INVESTIGATION.	10.
(b) SELECTION OF MATERIAL FOR THE VOCABULARY TEST:	
A Set of 100 Pictures.	11.
(c) COLLECTING OF MATERIAL FOR VOCABULARY TEST.	13.
Test Words for English Vocabulary, Table 1.	17.
Test Words for Afrikaans Vocabulary, Table 11.	18.
Set of 100 Pictures, following.	
(d) MATERIALS FOR GRAMMAR TEST:	
A Set of 20 Pictures.	19.
English Grammar Test, Table 111.	21.
Afrikaans Grammar Test, Table 1V.	22.
Set of 20 Pictures, following.	
(e) SCHOOLS SELECTED :	
1 Port Elizabeth,	23.
11 Cape Town,	23.
111 Control Schools.	23.

CHAPTER 3.

	Page
PROCEDURE IN TESTING.	
(a) Selecting Pupils.	25.
(b) Test Arrangements:	
1 Port Elizabeth,	25.
11 Kirkwood,	27.
111 Cape Town and Environs.	28.
Information Sheet, Table V.	30.
English Mark Sheet, Table VI.	31.
Afrikaans Mark Sheet, Table VII.	32.
List of Pupils Tested, Table VIII.	33.
(c) How the Questions were asked:	
A. Vocabulary.	34.
B. Grammar:	
English,	35.
Afrikaans.	36.
(d) How the Answers were marked.	37.
A. Performance in	38.
1. Vocabulary,	
2. Grammar.	
B. Contamination in	
1. Vocabulary,	
2. Grammar.	

CHAPTER 4.

OBSERVATIONS.

List of Ea pupils,	Table IX.	41.
List of Ae pupils,	Table X.	42.
Bilingual pupils in "Wrong-medium" Section.		43.
1. Port Elizabeth:		
Ae pupils in English-medium Classes.		45.
11. Cape Town:		
(a) Ea pupils in Afrikaans-medium Section.		47.
(b) Ae pupils in English-medium Section.		49.

Vague and/or Incorrect Answers:

(a) Given by E and Ea pupils in Grammar Test.	49.
(b) " " A " Ae " " " " .	50.

Barbarisms:

(a) Used by E pupils in Grammar Test.	50.
(b) " " Ea " " " " .	50.
(c) " " A " " " " .	51.
(d) " " Ae " " " " .	51.

TABULATED RESULTS.

Performance Scores, Table XI.	54.
Performance Scores(Percentages), Table XII.	55.
Distribution Tables, XIII - XXIV.	56 - 67.
Standard Deviation and Probable Error, Tables, XXV - XXVIII.	69 - 72.
Application of Probable Error to the results when the Means of certain groups of pupils are compared, Tables XXIX - XLII.	74 - 77.
Contamination Scores, Table XLIII.	79.
Contamination Scores(Percentages), Table XLIV.	80.
Distribution Tables, XLV - LXI.	81 - 91.
Standard Deviation and Probable Error, Tables LXII - LXIV.	93 - 95.
Application of Probable Error to the results when the Means of certain groups of pupils are compared, Tables LXV - LXVII.	97 - 99.
Words in Order of Difficulty, Table LXVIII.	100 - 105.
Amount of Agreement in Vocabulary of certain groups of pupils, Table LXIX.	106.

Words known by E and Ea pupils in the Second Language, but not in their First Language, Table LXX.	107.
Words known by A and Ae pupils in the Second Language, but not in their First Language, Table LXXI.	108.

CHAPTER 5.

CONCLUSIONS:

(a) Suitability of the Tests	109.
(b) Performance	112.
(c) Contamination	120.

LIMITATIONS.	127.
--------------	------

BIBLIOGRAPHY.	128.
---------------	------

Summary

1-11

CHAPTER 1.

INTRODUCTION.

At the time of the first capitulation of the Cape to the British in 1795 Dutch was the official language and used everywhere, together with its modified and spoken form, i.e. Cape Dutch or Afrikaans.(i)

At the time of the British occupation of the Cape in 1806, in the Articles of Capitulation certain rights were guaranteed. The burghers were under the impression that their language was safeguarded.(ii) But the Governors of the Cape, and Lord Charles Somerset in particular, thought it their duty to anglicise the Colonists as soon as possible. The authorities in England also considered it advisable that Dutch be suppressed as the official language in South Africa.(iii)

Later on a successful struggle was carried on for the recognition of the rights of Dutch.

By the Union Constitution Dutch was recognised as an official language on an equal basis with English.

Afrikaans gradually took the place of Dutch and since 1925 Afrikaans has enjoyed the same legal rights as English.

As may be expected in a bilingual society, English and Afrikaans are subject to reciprocal influence.

(a) The influence of English on Afrikaans.

English influence on Afrikaans dated from the beginning of the 19th century. This influence made itself felt through many channels and the process continues.

For a long time, in very many schools, the medium was English. English dominated public life and obtained a firm grip on the industrial life.

-
- i. Aucamp, Dr.A.J.: Bilingual Education and Nationalism, 1926,
ii. Aucamp, op.cit. p. 131. page 128.
iii. Malherbe, Dr.E.G.: Education in South Africa, 1925, p. 57.

The opening of the diamond and gold mines was a great factor in the process of establishing the English language in the heart of the Afrikaner strongholds.

During and immediately after the Anglo-Boer War, English gained further ascendancy. Education and new social-economic conditions brought the two sections into the closest contact. Afrikaners began to migrate to the cities. This migration increased on account of changing circumstances so that the partial isolation of the Afrikaans-speaking element was modified too.(i)

To-day the two language groups are in daily contact with each other and it stands to reason that if care is not taken to speak the languages correctly, either a mixed language will result like the so-called "Beulemans" which is a mixture of Dutch and French and which is being spoken in some parts of Brussels,(ii) or there will be the possibility of the one being displaced by the other.

On the other hand, owing to the unconscious background and the selective activity of the mind, there is a natural tendency among bilingual people not to mix the languages. As far as the unconscious background is concerned, the subject-matter plays an important part. The bilingual South African is usually inclined to treat certain subjects through the medium of Afrikaans and others through the medium of English, e.g. when he discusses the veld, the language, Afrikaans, with which it has become associated and in which he has acquired certain habits of expression, seems to come more readily to the tongue.

The surroundings may even be more important. We find it difficult to speak English to the people with whom we have been accustomed to speak Afrikaans, and vice versa, even though both languages.....

-
1. Malherbe, Dr. D. F.: Afrikaanse Spreekwoorde en Verwante Vorme, 1924, page 70.
 - ii. le Roux, Prof. J. J.: Anglismes; Die Huisgenoot, 16 Maart 1945.

languages may be known and spoken by the person concerned. In some cases, however, we are inclined to mix the two languages, because either or both may be associated with different people.(1)

Broadly speaking, the influence of English on Afrikaans is revealed in (a) loan-words, i.e. English words which are used occasionally or used by small groups only, and are therefore not yet recognised as Afrikaans, and (b) Anglicisms (barbarisms of English origin), i.e. phrases and expressions which are Afrikaans in form but are used in the English sense as regards function, conjugation and composition.

In South Africa there are many Afrikaners who are able to express themselves tolerably well in English, and a number of English-speaking people who are able to speak correct Afrikaans, but it is noteworthy that there is a large group of so-called Afrikaans-speaking people who use English loan-words and Anglicisms and thus speak a mixed language when they are supposed to be speaking Afrikaans. Professor le Roux is of opinion that this group is not counter-balanced by a similar group of English-speaking people using Afrikanerisms to the same extent.(ii) But there are people who think that there is a fairly large group of the latter.

There are many reasons why Afrikaans-speaking are inclined to use Anglicisms and English loan-words. English is used extensively in offices and in society. Since English books, periodicals and newspapers are read so widely the English vocabulary is kept up-to-date. English is extensively used in correspondence and consequently Afrikaans comes less readily to the tongue.(iii) American talkies are doing their share in the dissemination of English among the Afrikaner people.(iv)

1. Schmidt, C.H.: The Language Medium Question, 1926, page 27.

ii. le Roux, op.cit. Die Huisgenoot, 16 Maart 1945.

iii. le Roux, op. cit.

iv. Barnouw, A.J.: Language and Race Problems in S.A., 1934, p. 39

On account of social-economic conditions many Afrikaners from the country districts are continually migrating to the industrial and/or sea-port towns in search of employment. Their vocabulary is limited and does not meet the needs of the city dwellers and they are not usually as language conscious as the people who have qualified for the professions.

They learn to use English technical terms without being aware of the fact that they are using English words. Consequently they talk a mixed language which in time causes associations which are unconsciously taken over by others. Later on they cannot discriminate between a pure and a mixed language. Some of them become unwilling to exert themselves to learn the Afrikaans terms because of a certain amount of vanity, a sense of inferiority or for fear of being considered eccentric or even impolite. Others use the English term because they think that the people with whom they are conversing would not understand the Afrikaans term, or because the English term may not have an exact Afrikaans equivalent.(i)

But the deciding factor is probably the inferiority complex of some Afrikaners engendered by the English language and culture. For a considerable time English culture, as interpreted by the English language, has been the only example of a superior mental culture known here, because the most uncivilised, the poorest and most backward classes in South Africa, the Coloureds and the Poor Whites, were the unilingual Afrikaans-speaking people.(ii) In

In South Africa loan-words and Anglicisms are mostly in evidence where the two European sections come in closest contact as in the Eastern Province, in Natal, in the big industrial cities and/.....

i. Rousseau, Dr.H.J.: Afrikaans en Engels, 1937, page 9.

ii. Rousseau, op. cit. page 56.

and in those spheres of society where English obtained ascendancy during the beginning of the 19th century. Although this influence has become very extensive it is comparatively superficial.(i)

The number of English words that have acquired a permanent place in Afrikaans is small. Afrikaans names have displaced numbers of English names for new articles and new activities. scientific terms have been introduced by more extensive Afrikaans-medium instruction. Enormous progress has been made towards developing correct sporting terms, and this progress has been helped by writers of sporting articles and fiction. Words that were in daily use thirty or forty years ago have fallen into disuse or are used in uneducated circles only. Notwithstanding all this, Afrikaans has to fight continually against the English loan-word in order to obtain and maintain its purity. A great help in this struggle is the fact that the English loan-word is easily recognised as such.

This is not always the case with Anglicisms, and even conscientious writers and public speakers have been known to use some or other Anglicism without being aware of the fact. Fortunately for the purity of Afrikaans, the influence of Anglicisms, like that of loan-words, has not struck deep roots yet, but they appear so frequently that they might easily become ineradicable.(ii)

To-day the purity of Afrikaans is threatened from another quarter. Up to now contaminated Afrikaans has almost exclusively been used by Afrikaners, but now it is also being used by bilingual English-speaking people. More and more English families settle in the country districts or in the smaller towns, and in speaking to Afrikaners they often speak Afrikaans interspersed with loan-words and Anglicisms. Sometimes these people occupy responsible/....

i. le Roux, op. cit. Die Huisgenoot, 30 Maart 1945.

ii. le Roux, op. cit. Die Huisgenoot, 6 April 1945.

It may be of interest to mention at this stage that recently on the initiative of the "Skakelkomitee"(i) of the Afrikaans Cultural Societies in Cape Town the need for purifying Afrikaans was discussed at the most recent Congress of the "Federasie van Afrikaanse Kultuurverenigings".(ii) The F.A.K. thereupon sent circulars to all affiliated societies urging them to work for the maintenance and spread of a pure language form, i.e. to aim at eradicating the use of Anglicisms and other impurities.

The Dutch Reformed Church of the Transvaal recently decided to help in this campaign which is gradually taking shape and which aims at drastic steps being taken in order to purify Afrikaans. While the F.A.K. lays more stress on the language form, the Church is tackling the question of correct pronunciation.(iii)

(b) The Influence of Afrikaans on English.

On the other hand, Afrikaans has had, and still has an influence on English. If one reads an English book with a South African background one is struck by the number of Afrikaans words and phrases used in it.

Professor Barnouw who visited South Africa in 1931 for the purpose of making a comparative study of Afrikaans and of the Dutch language in South Africa, discussing the Cape Town newspapers, said:(iv)"The editorials of the two English journals(v)) are not faultless specimens of Oxford English. Afrikaans words and phrases crop up that must baffle an Englishman who has just arrived/.....

-
- i. A Committee representing Afrikaans Cultural Societies.
 - ii. Federation of Afrikaans Cultural Societies.
 - iii. Die Huisgenoot, 25 Mei 1945.
 - iv. Barnouw, A.J.: Language and Race Problems in S.A., 1934,
 - v. The Cape Times and The Cape Argus. page 30.

arrived on a steamer of the Union Castle Line..... to inspan a team of horses is South African for to harness..... Roy Campbell, the Natāl poet, once started a literary periodical which he called "Voorslag"(Whip). The most popular illustrated weekly in English is the "Outspan". Topographical nomenclature is full of words that are of Dutch origin. Dorp is used for village, drift for ford, fontein for spring, kloof for ravine, spruit for a small river, vlei for a hollow filled with water in rainy season, veld for the open plain".

Owing to the influence of Afrikaans there are many phrases and syntactical errors which are peculiar to South Africa. In Jackson's Grammar several pages are devoted to these Afrikanerisms.

If one listens to the English spoken by ^{some} ~~seen~~ of the so-called English-speaking South Africans one wonders whether the influence that Afrikaans has had on English is not fairly extensive also.

At the Conference of the South African Teachers' Association held in Port Elizabeth, in June, 1945, Dr. Godfrey Bobbins made interesting comments on the pronunciation of certain English words by South Africans, many of whom did not like "refined English", because the impression of affectation was widespread. He moved, "that South African English be recognised as a variety of English and that the English Department of the University of Cape Town be asked to undertake a phonetic study of this dialect and make an attempt to ^{define} ~~define~~ it, and to purify it of vulgarisms and of sounds which make it unintelligible to the inhabitants of other countries where English is spoken"(1)

1. The Eastern Province Herald, June 30, 1945.

The purpose of this investigation is now clear. From the foregoing discussions it is clear that both English and Afrikaans are subject to considerable reciprocal influence, not only so far as loan-words are concerned, but, what is of much greater importance, so far as syntax and idiom are concerned. Exactly what the extent of this influence is, it is the purpose of this thesis to determine by an investigation. Owing to various factors, reliable results would be very difficult to obtain if adults were selected as test persons. The investigator is of opinion that the most suitable test persons are children at the age of 6 plus, i.e. children who have just begun school. The language they speak will reflect the quality of the language spoken at home and of the children with whom they play.

CHAPTER 2.

(a) THE AIM OF THIS INVESTIGATION.

The purpose of this investigation is:-

1. To draw up a language test suitable for school beginners of the age group 6 plus; and
2. To use this test in order to determine the language performance of pupils beginning school and the extent of the reciprocal influence to which English and Afrikaans are subject, so far as both vocabulary and grammatical structure are concerned, as these are revealed in the child's use of his/her first language.⁽¹⁾

In a bilingual society in which both languages are used, the reciprocal influence of the one upon the other reveals itself in some degree of admixture, particularly in the case of colloquial English and Afrikaans. This has been referred to in the introductory chapter.

Anglicisms on the one hand, and Afrikanerisms on the other, both detract from Afrikaans and English respectively. It is in this sense that the term "Language Contamination" is used.

To determine the language performance and the degree of contamination the initial procedure was to find:

1. A norm of performance in (a) Vocabulary, (b) Grammar, and (c) Vocabulary*Grammar for the free school pupils of the age group 6+, who were without doubt English-speaking, (hereinafter designated E pupils).
2. A similar norm for pupils who were without doubt Afrikaans-speaking, (designated A pupils).
3. A norm of performance in the first language for bilingual pupils whose first language is English, (Ea) pupils).
4. A similar norm for bilingual pupils whose first language is Afrikaans, (Ae pupils).

1. First language, home language or mother-tongue are used synonymously for the language the child understands and speaks best.

5. The effect of the social-economic status of the pupils on the norm of performance for English-speaking fee-paying pupils, 6 plus years old. (These fee-paying schools are hereinafter referred to as English Control or EC schools and the pupils tested in these schools as EC pupils).

6. A norm of performance for Afrikaans-speaking pupils of the same social-economic standing as the EC pupils. In view of the fact that no Afrikaans-medium fee-paying Primary School existed, it was found necessary to select from certain Afrikaans-medium free schools pupils whose social-economic status approximated to that of the pupils in the English-medium fee-paying Primary Schools. Certain pupils were also selected from Afrikaans-speaking homes with an intellectual background, irrespective of the schools these pupils attended. (These pupils will be referred to as AC pupils).

7. A norm of Contamination in:

- (a) Vocabulary,
- (b) Grammar,
- (c) Vocabulary + Grammar, for all the groups mentioned

above.

(b) SELECTION OF MATERIAL FOR THE VOCABULARY TEST:

A Set of 100 Pictures.

In 1937 the writer carried out an investigation in connection with "VOCABULARY ATTAINMENT AS A MEANS OF DETERMINING THE MOTHER TONGUE OF SCHOOL ENTRANTS IN THE CAPE PROVINCE," and submitted a thesis for the degree of B.Ed. to the University of Cape Town.

For the above-mentioned investigation he decided to use 100 test words and to represent them by pictures, because, owing to the age of the children tested, and the fact that they were not able to read at the time of testing, pictures seemed

to/.....

to have much to recommend them. Seeing that pictures were used, the test words could not be selected in the same way as was the Stanford Vocabulary list which was constructed by selecting every 180th word in a dictionary containing 18,000 words(i) or as a list obtained by selecting the last word of every 6th column of a dictionary containing 18,000 words as was used by Terman(ii) Words were selected that could be represented by pictures suitable for testing both English and Afrikaans-speaking pupils. The scoring proved to be very satisfactory.

Terman(iii) at the time had not worked out a satisfactory method of scoring the quality of definitions in the vocabulary test which he used.

Referring to the presentation of a picture, Binet stated:(iv) "With children pictures render invaluable service. The eyes of even the most inattentive child shine when he is shown a picture. It is an almost certain means of captivating him. Pictures may serve many ends; as we have already said they may be used for the designation of objects. We shall now show how they may be used to make the child talk.....Very few tests yield so much information as this one. If we add that this test is one which pleases young children the most, and succeeds in overcoming the obstinate silence of the very smallest one we are justified in concluding that we have found here, by chance, a test of exceptional value. We place it above all the others, and if we were obliged to retain only one, we shall not hesitate to select this one."

According to Burt(v) every test of intelligence is also a test of emotion. Disturbances in unknown quantity will be introduced by the child's excitability, though the procedure might/.....

-
- i. Terman: The Intelligence of School Children, 1921, p. 512.
 - ii. Terman: The Measurement of Intelligence, pp. 229, 230.
 - iii. Terman: The Measurement of Intelligence, p. 230.
 - iv. Binet & Simon: The Development of Intelligence in Children, 1916, p. 188.
 - v. Burt: Mental and Scholastic Tests, 1926, p. 16.

might be scrupulously uniform and the examiner's tone be sympathetic. A constant appeal should be made to the invigorating emotions, i.e. to pleasure, curiosity, pride, self-display, sociability and confidence. In other words, tests should be conducted in the spirit of a game.

In the investigation of 1937 it was found that the same emotional factors operated when the selected pictures for vocabulary testing with the 6 plus year old group were used. Pictures constituted the most convenient form of material to use because, as the subjects could not read at the time of testing, the alternative to pictures would have been the objects themselves, dramatisation of the actions to be represented and oral explanation of certain situations.

The pictures removed these difficulties. The testing could be conducted without carrying objects from school to school and a consistent procedure could be devised on all occasions and with all pupils. As the pictures appealed to the invigorating emotions of the subject they enabled the investigator to conduct the test in the spirit of a game because the children were interested in the pictures, forgot to be nervous in the presence of a stranger, and were keen to show their knowledge.

(c) COLLECTING OF MATERIAL FOR THE VOCABULARY TEST.

For the investigation mentioned above the writer obtained about 50 lists of 100 of the most common words with which, in the experience of Kindergarten teachers, (1) entrants to their respective schools were most familiar. By courtesy of a number of principals, and with the kind co-operation of their Kindergarten teachers, these lists were collected from various parts of the Cape Province and even from the Orange Free State, the Transvaal and South-West Africa. A summary of the words served as an indication of the words which a child usually knows best and/.....

1. The term "Kindergarten teachers (mistresses)" is used to denote class-teachers of the Sub-Standards.

and in what activities he takes the keenest interest at the time that he is admitted to school.

At that time (April, 1937) an article appeared in "De Nieuwe Taalgids: 31ste Jaargang, 3de Aflevering", entitled: "Een Woordenschatonderzoek by zesjarige Kinderen". In this article R. Kuitert and I. van der Velde described an investigation conducted by them in Holland to determine a norm in the mother-tongue of Dutch children at the age of 6. They used 100 test words divided into four groups representing the centres of interest (levenskringen) of the child. The principle was taken over in a modified form from Decroly. The groups contained 40, 20, 20, 20 words respectively, according to the importance of the centre of interest, as follows:

- (a) The child and his immediate environment (Omgeving),
- (b) The care of the child (Verzorging),
- (c) The child and his activities (Bezigheden), and
- (d) The child and his wider environment (De Wereld).

The groups were sub-divided into several sections according to the principle taken over in a modified form from H. Pohlman who had carried out investigations along those lines.

For the purpose of the investigation of 1938, the classification of these words followed the lines laid down by R. Kuitert and I. v.d. Velde as up to a certain point the aims of the investigations were identical. They also had selected their list of test words after extensive study, careful deliberation, and aided by experienced teachers. They used about 50 pictures (of which they gave no copy). Some were represented by the objects themselves; others they explained orally, while they dramatised the rest.

The investigation in 1937 went a step further than that of R. Kuitert and I. v.d. Velde as it was necessary to obtain norms in two languages with the same material. Consequently 100 test words were selected which would in general be familiar to English-speaking....

English-speaking and Afrikaans-speaking children, whether urban or rural; and whatever their social-economic circumstances. Thus the words could not be selected according to some arbitrary method e.g. from a dictionary. The choice was made on the basis of the suggestions of experienced teachers, and was guided by the results of investigations by research workers, to whom reference has been made above. Words were selected approximately one-third of which were used in the investigation conducted by R. Kuitert and I. v.d. Velde. The test words were selected in such a way that some of the pictures had only to be enumerated, i.e. requiring a mere list of persons, objects or details, and suitable for children of three years of age and upwards. Other pictures required description, i.e. indicating actions or characteristics, and suitable for children of 6 or 7 years of age, while a few entailed easy cases of interpretation, i.e. where the replies went beyond what was actually visible in the picture.

Burt says:(1) "There can, I think, be little doubt that pictures better printed, larger, coloured(as Saffiotti's) representing actions in progress (as Bobertag's), showing children (as Bobertag's and Saffiotti's) would be much more appropriate than Binet's original engravings."

The investigator took these points into consideration when the pictures were drawn. The pictures were reduced to such a size that ten could cover a page of foolscap. There were thus ten pages of pictures. The pictures were found large enough for the purpose. They were all of uniform size, were coloured, and represented actions in progress (where suitable), and where possible, they depicted children. After preliminary tests had been carried out, and certain modifications and/or re-adjustments had been made, the investigator was satisfied that the set of pictures could be used as testing material.

1. Burt, Cyril: Mental and Scholastic Tests, 1921, p. 26.

In the present investigation the decision was made to use the 100 pictures which comprised the material for testing the vocabulary in the 1937 investigation. This decision was based upon the fact that the norm of performance in vocabulary could be determined by the use of the unaltered material of the previous investigation. Moreover, the previous investigation had revealed contamination, i.e. the pupils had used the vocabulary of one language in responding to the tests in the other.

The set of test words is given in Table 1.(i) The four sections and twenty sub-sections are clearly shown in the table. In Table 11(ii) the test words are given in Afrikaans with similar specifications, and then follows the list of pictures representing the test words.

i. See page 17.

ii. See page 18.

TABLE 1.

TEST WORDS FOR ENGLISH VOCABULARY.

The child and his IMMEDIATE ENVIRONMENT	THE CARE of the child	The child and his ACTIVITIES	The child and his WIDER ENVIRONMENT
A.	I.	M.	Q.
1. roof	41 cake	61 skipping	81 church
2 chimney	42 cheese	62 top	82 butcher
3 kitchen	43 sugar	63 hide-and-seek	83 shop
4 bathroom	44 egg-cup	64 doll	84 street
5. shelves	45 sausages	65 swinging	85 pillar-box
B.	J.	N.	R.
6 chair	46 glove	66 drawing	86 ploughing
7 curtains	47 buttons	67 slate	87 watering-can
8 piano	48 trousers	68 crawling	88 rake
9 wardrobe	49 apron	69 climbing	89 gate
10 calendar	50 braces	70 fishing	90 milk-can
C.	K.	O.	S.
11 scissors	51 swimming	71 sweeping	91 chain
12 pillow	52 brushing teeth	72 digging	92 bridge
13 tray	53 elbow	73 ironing	93 picking
14 jug	54 yawning	74 darning	94 shell
15 candlestick	55 sponge	75 scrubbing	95 shaving
D.	L.	P.	T.
16 candle	56 medicine	76 horns	96 waggon
17 fire	57 plaster	77 kicking	97 wheelbarrow
18 grate	58 combing hair	78 licking	98 petrol-pump
19 coal	59 glasses	79 biting	99 railway-lines
20 lantern	60 ointment	80 saddle	100 riding on horse-back
E.			
21 duster			
22 key			
23 axe			
24 money			
25 diamond			

SUB-DIVISIONS.

F.	A The House	K Hygiene
26 ostrich	B Furnishing	L Nursing
27 crowing	C Household Articles	M Games
28 grapes	D Lighting and Heating	N Natural Activities
29 barking	E Instruments, Money, Materials, etc.	O Labour
30 frog	F Animals, Plants, Animal Noises	P Animals and Related Objects
G.	G Sensory Qualities	Q City
31 crooked	Colours, Social and Ethical Ideas	R Farm
32 yellow	H Natural Phenomena	S General
33 sour	I Feeding	T Travel
34 paying	J Clothing	
35 parents		
H.		
36 clouds		
37 wind		
38 shadow		
39 rainbow		
40 lightning		

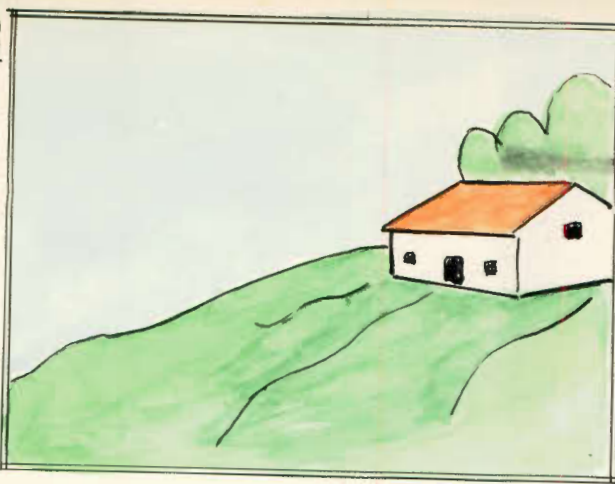
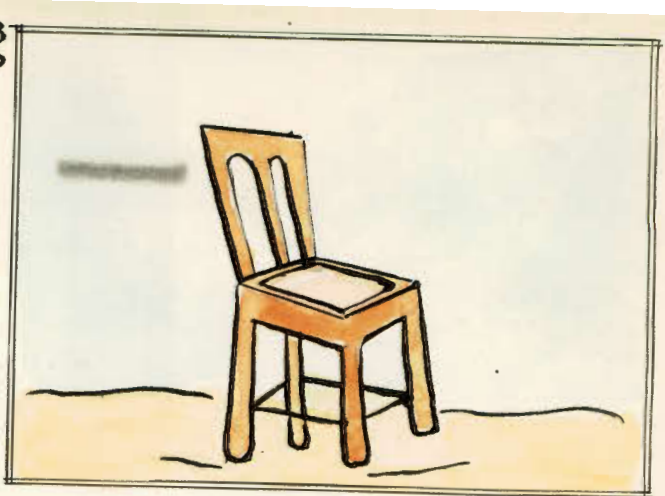
TABLE 11.

TEST WORDS FOR AFRIKAANS VOCABULARY.

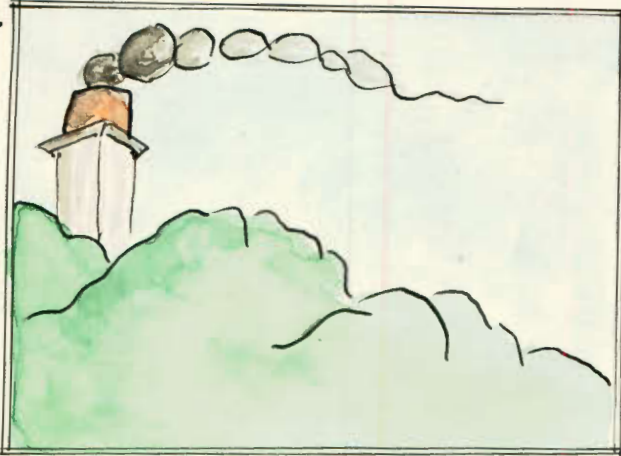
Die kind en sy OMGEWING	Die kind en sy VERSORGING	Die kind en sy AKTIWITEITE	Die kind en DIE WÊRELD
A. 1 dak 2 skoorsteen 3 kombuis 4 badkamer 5 rakke	I. 41 koek 42 kaas 43 suiker 44 eierkelkie 45 wors	M. 61 riemspring 62 tol 63 wegekruipertjie 64 pop 65 swaai	Q. 81 kerk 82 slagter 83 winkel 84 straat 85 posbus
B. 6 steël 7 gordyne 8 klavier 9 klerekas 10 almanak	J. 46 handskoene 47 knope 48 broek 49 voorskoot 50 kruisbande	N. 66 teken 67 lei 68 kruip 69 klim 70 vang vis	R. 86 ploeg 87 gieter 88 hark 89 hek 90 melkkan
C. 11 skêr 12 kussing 13 skinkbord 14 beker 15 blaker	K. 51 swem 52 borsel tande 53 elmboog 54 gaap 55 spons	O. 71 veeg 72 spit 73 stryk 74 stop 75 skrop	S. 91 ketting 92 brug 93 pluk 94 skulp 95 skeer
D. 16 kers 17 vuur 18 kaggel 19 kool 20 lantern	L. 56 medisyne 57 pleister 58 kam hare 59 bril 60 salf	P. 76 horings 77 skop 78 lek 79 byt 80 saal	T. 96 wa 97 kruitwa 98 petrolpomp 99 treinspoor 100 perdry
E. 21 stoffer 22 sleutel 23 byl 24 geld 25 diamant			

ONDERAFDELINGS.

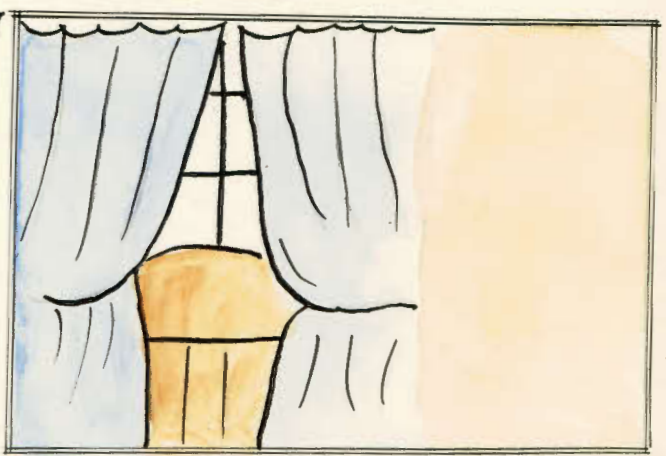
F. 26 volstruis 27 kraai 28 duiwe 29 blaf 30 padda	A Die Huis B Meubelering C Huishoudelike Artikels D Verligting en Verwarming E Instrumente, Geld, Materiale, ens. F Diere, Plante en Dieregeluide G Sintuiglik-Waarneem- bare Eienskappe, Kleure, Sosiale en Etiese Begrippe H Natuurverskynsels I Voeding J Klerasie	K Higiëne L Verpleging M Spele N Natuurlike Aktiwiteite O Arbeid P Omgang met Diere Q Stad R Plaas S Algemeen T Op Reis
G. 31 krom 32 geel 33 suur 34 betaal 35 ouers		
H. 36 wolke 37 wind 38 skadu 39 reënboog 40 weerlig		

A
1B
6

2



7



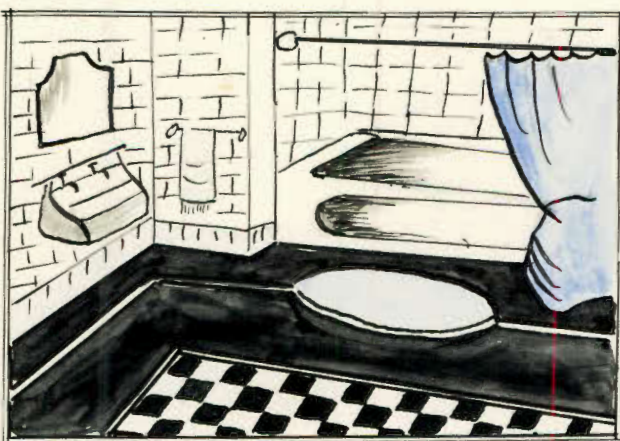
3



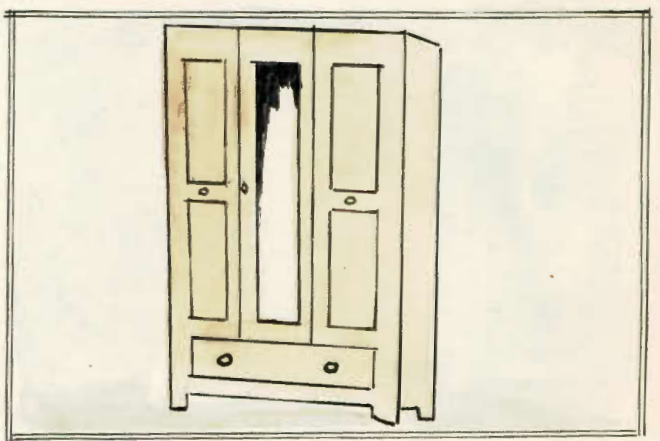
8



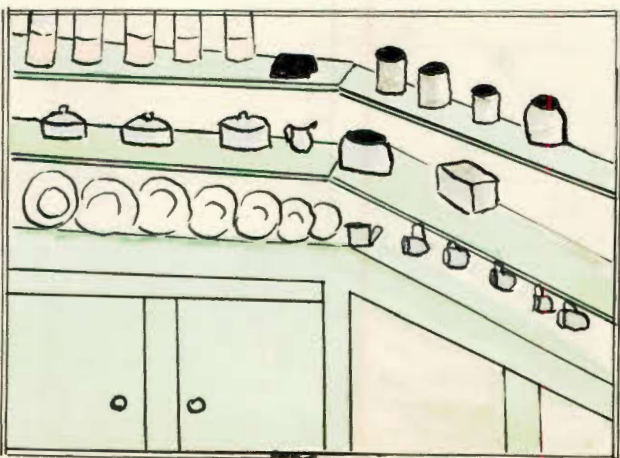
4



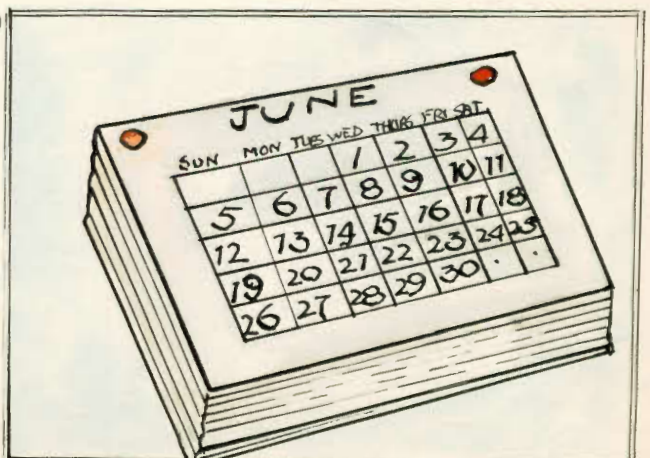
9

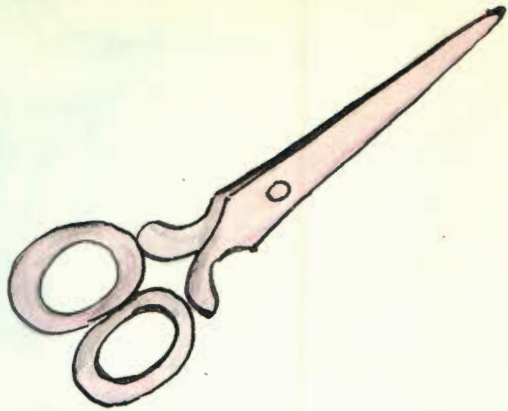


5



10



C
11D
16

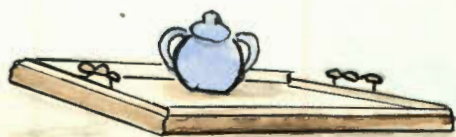
12



17



13



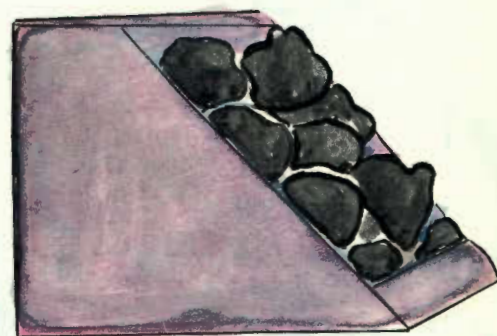
18



14



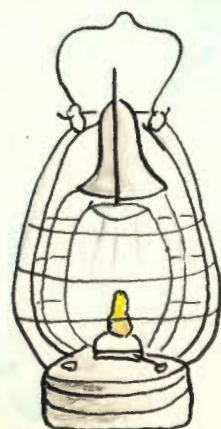
19



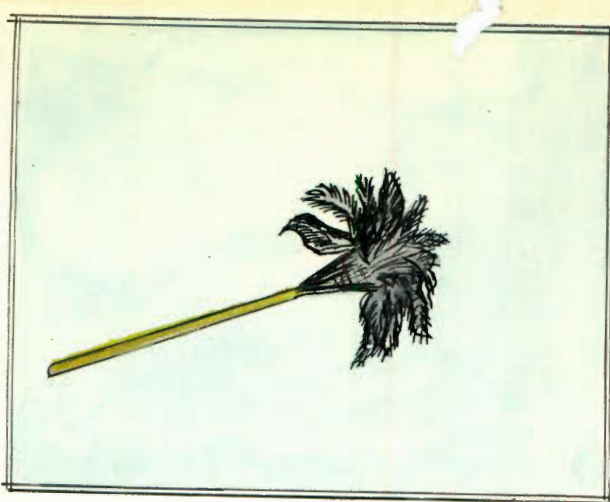
15



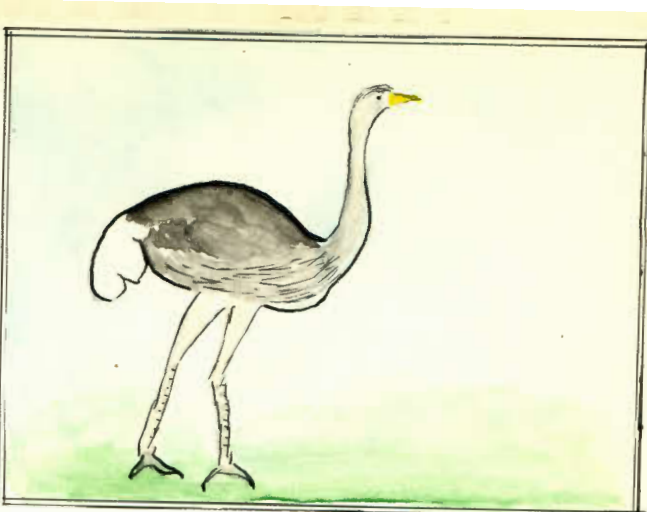
20



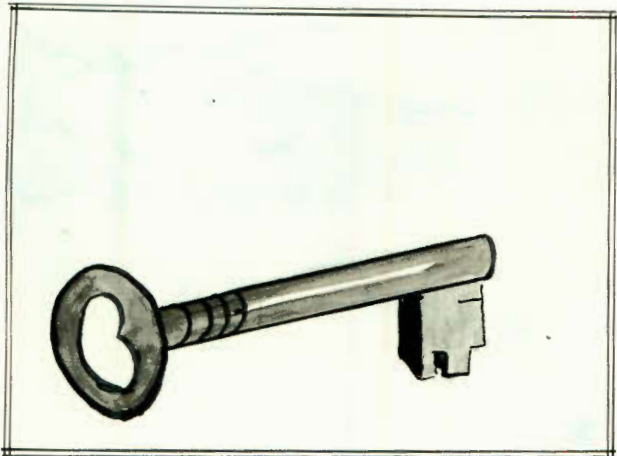
E
21



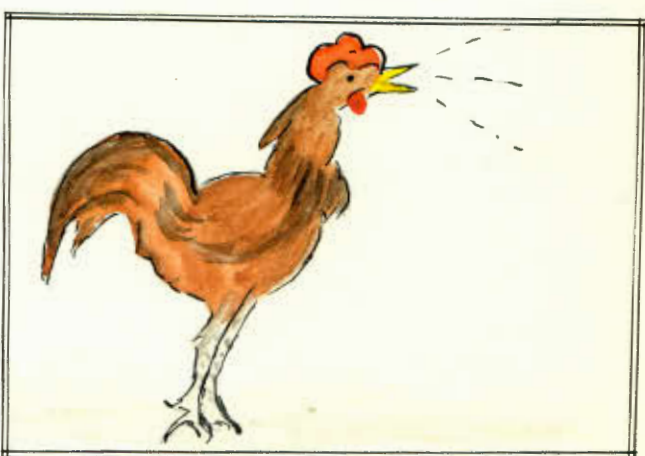
F
26



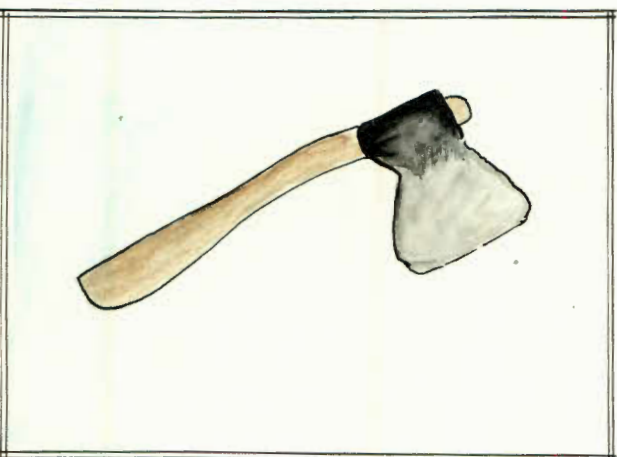
22



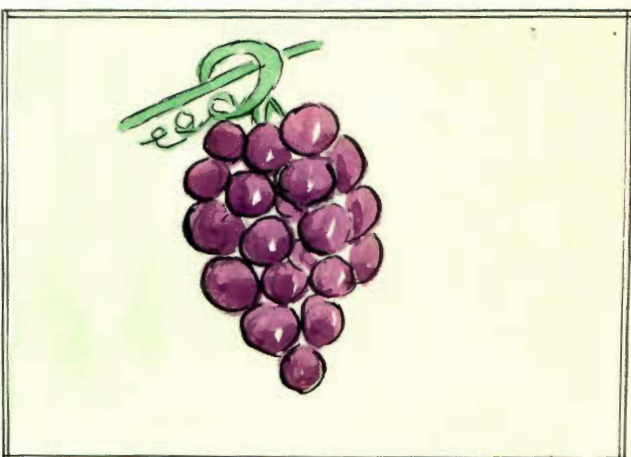
27



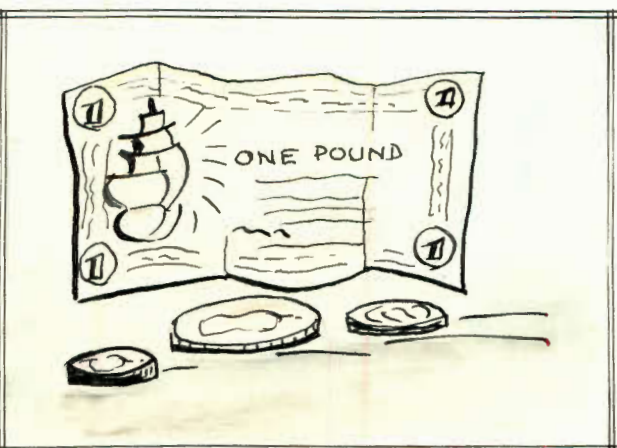
23



28



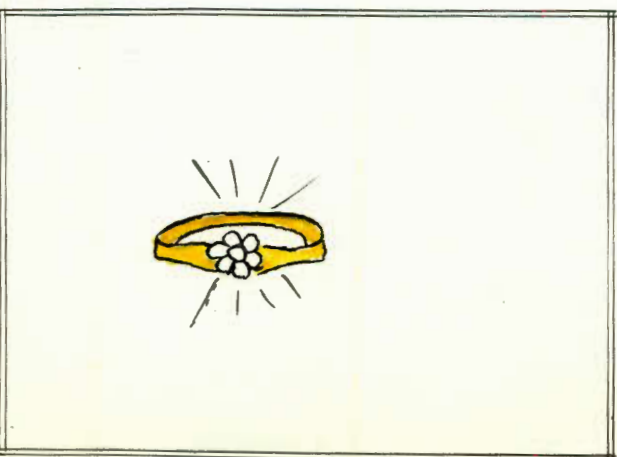
24



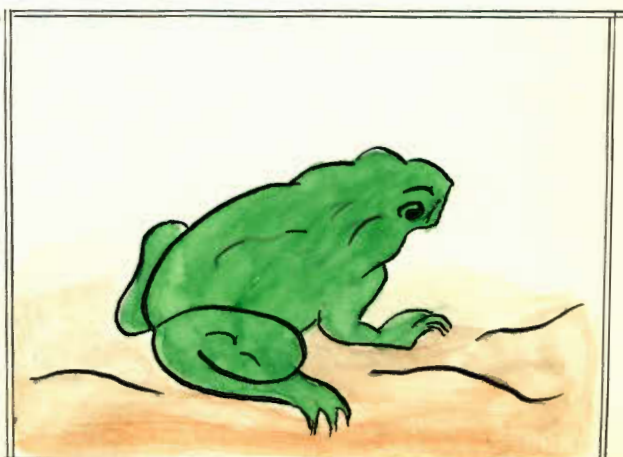
29

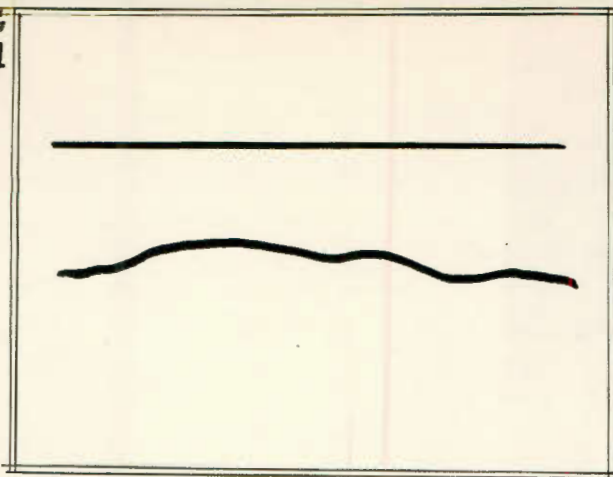


25

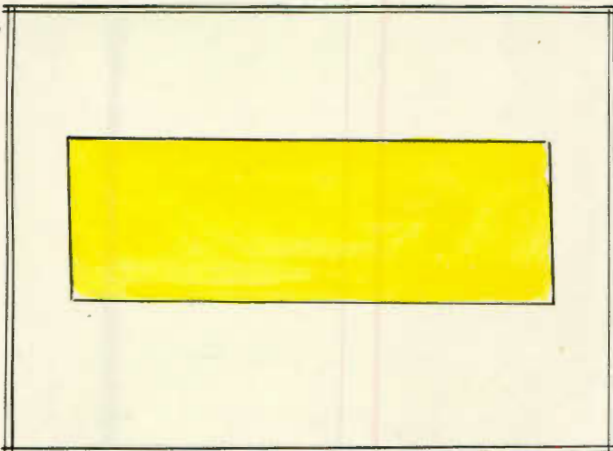


30



G
31H
36

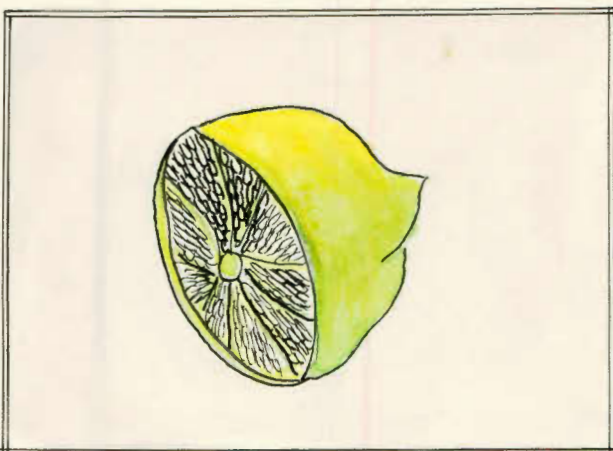
32



37



33



38



34



39

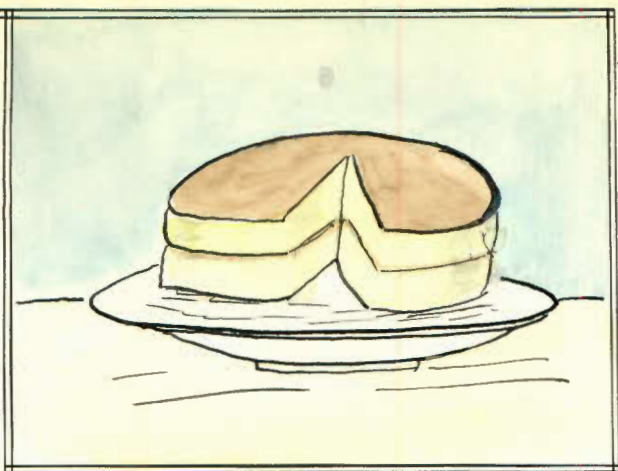
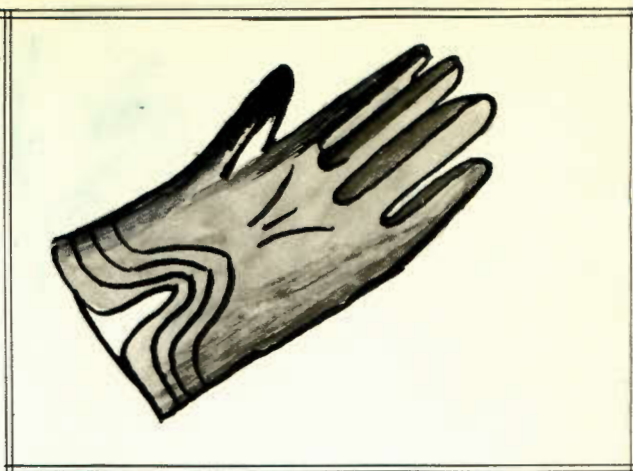


35

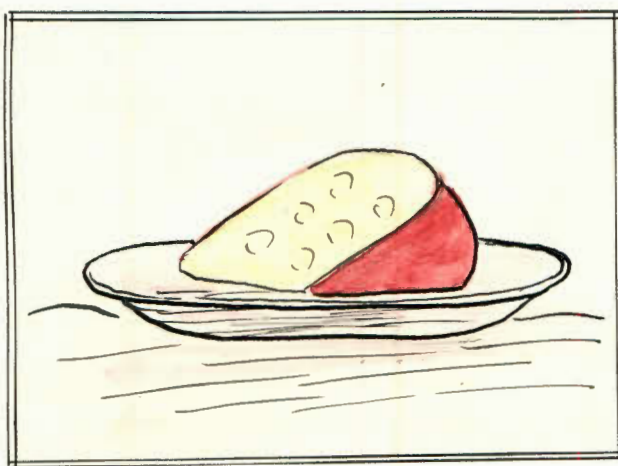


40

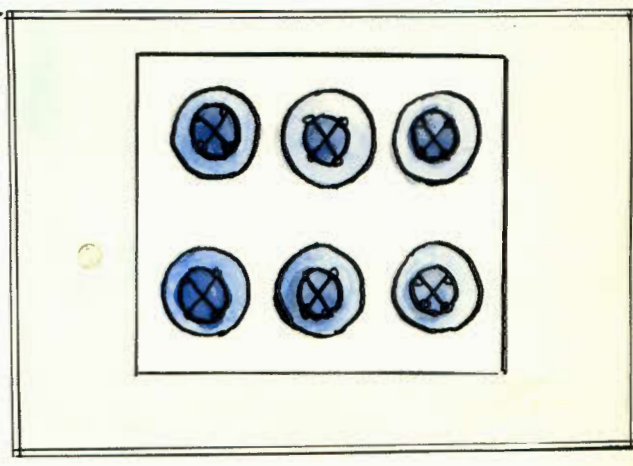


I
41J
46

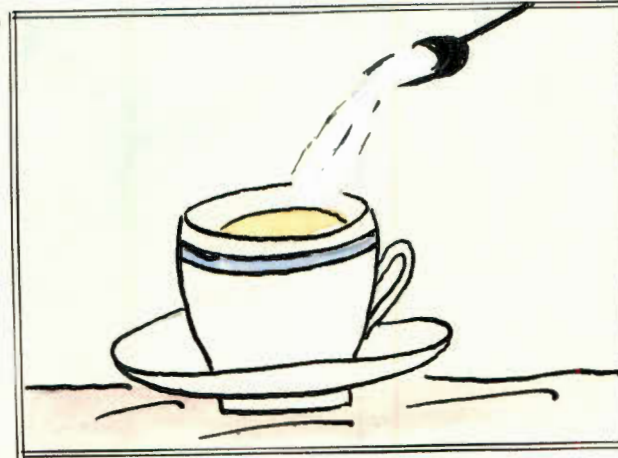
42



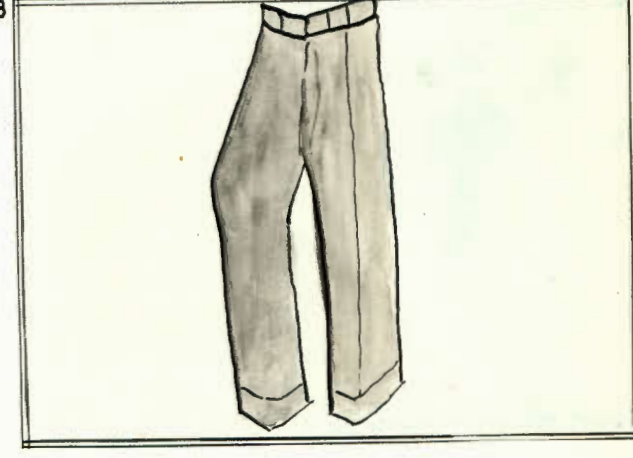
47



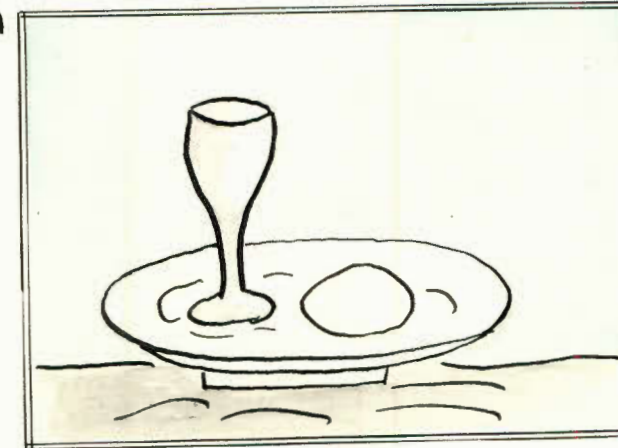
43



48



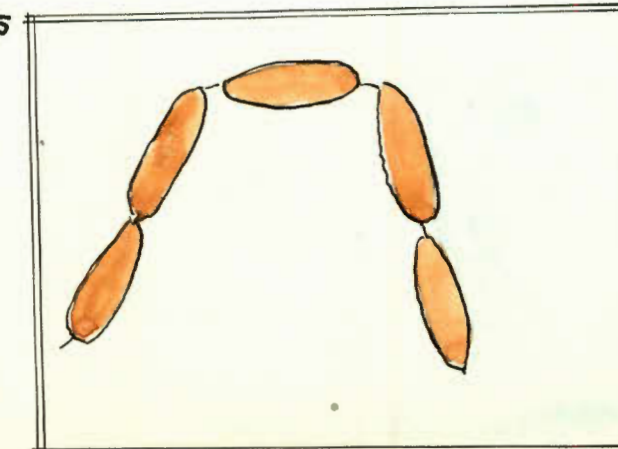
44



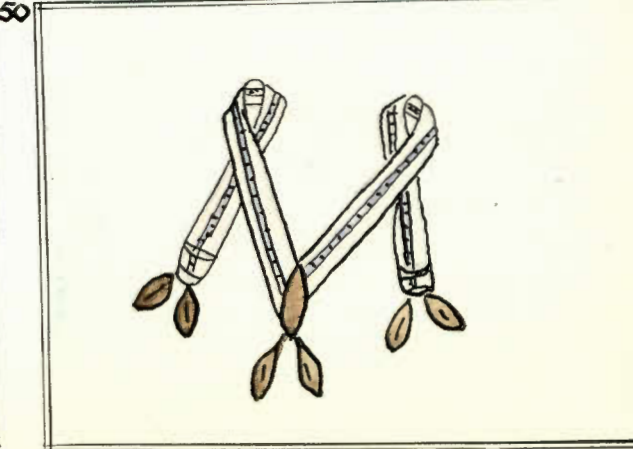
49



45



50



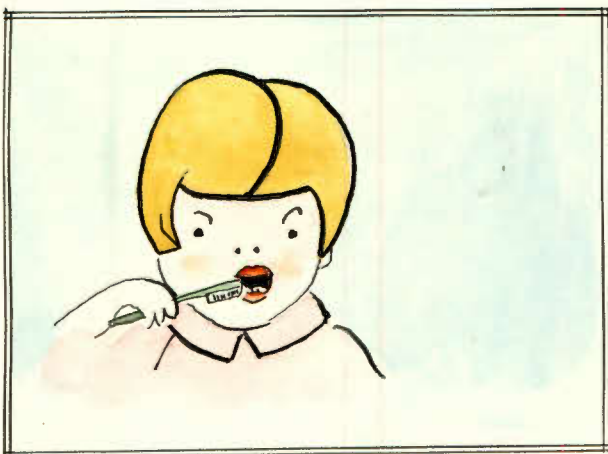
K
51



L
56



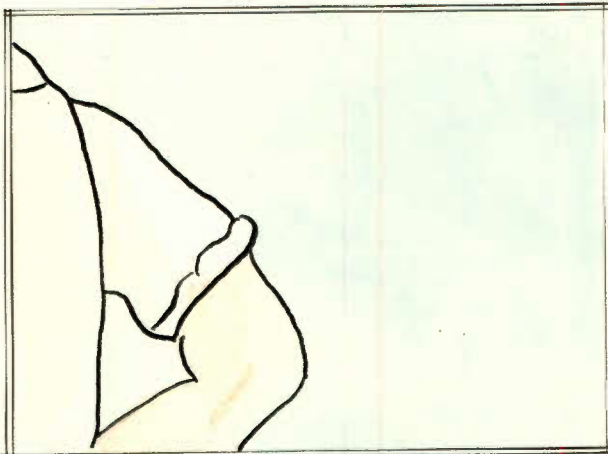
52



57



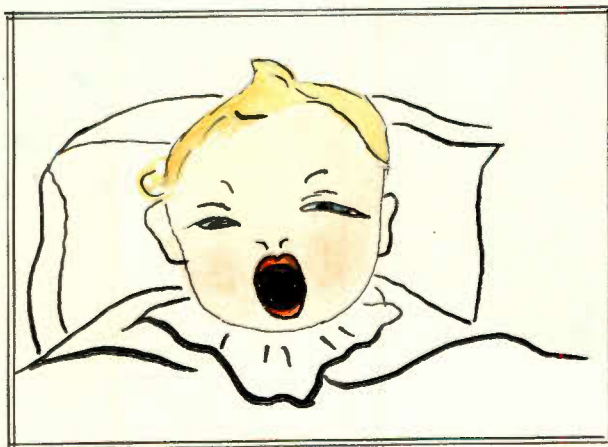
53



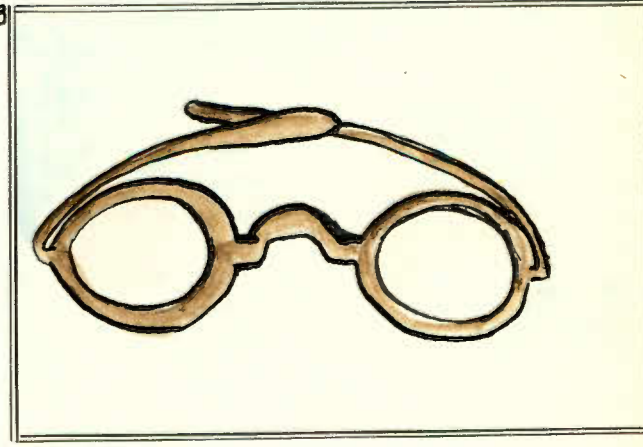
58



54



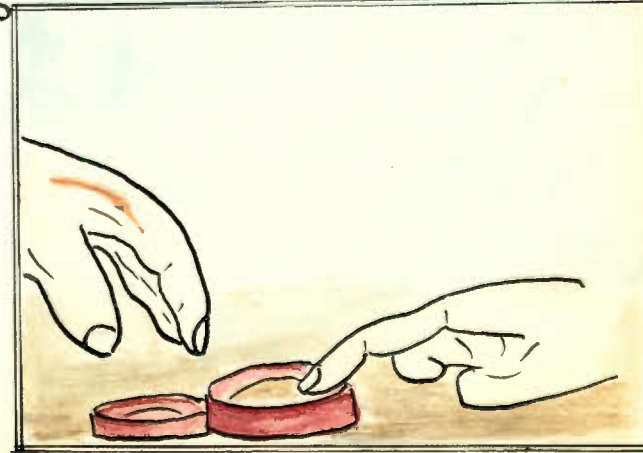
59

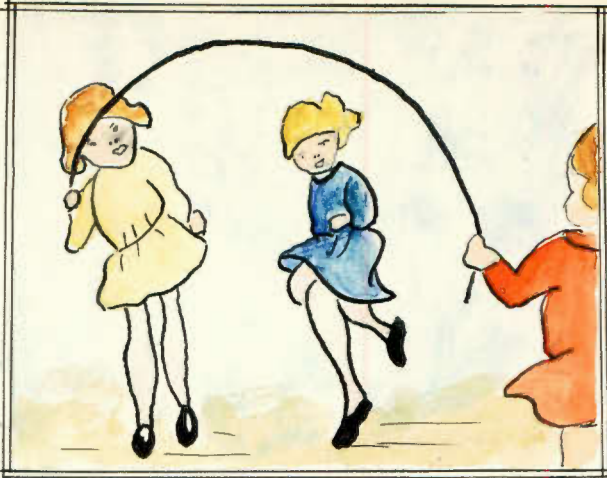
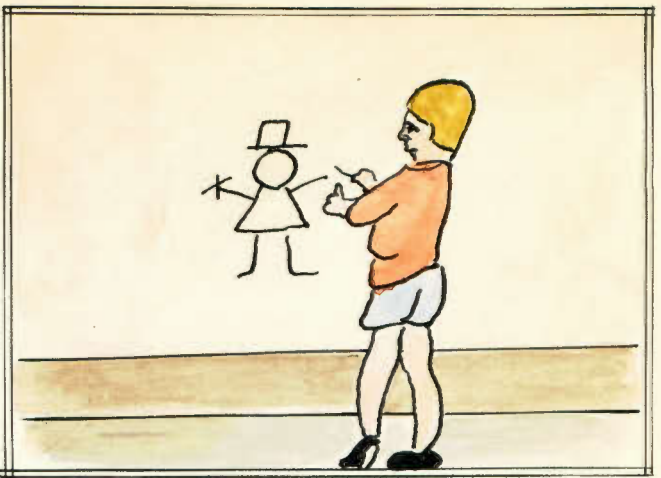


55

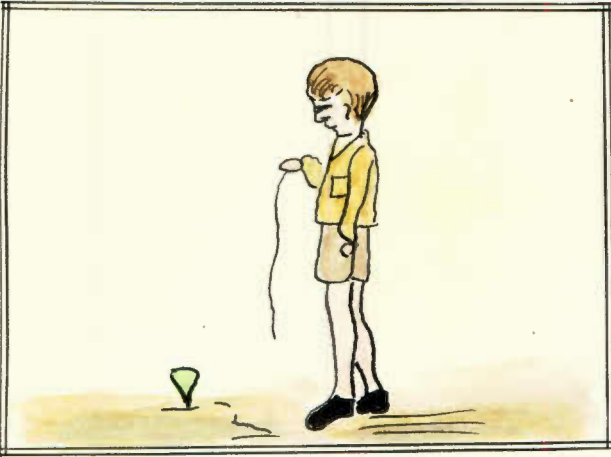


60

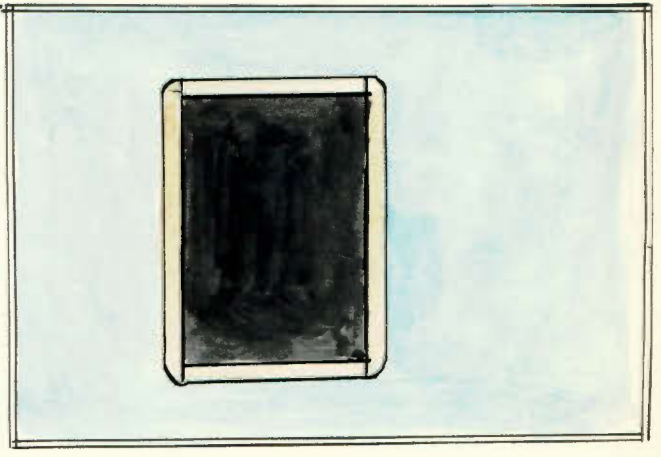


M
61N
66

62



67



63



68



64



69



65



70

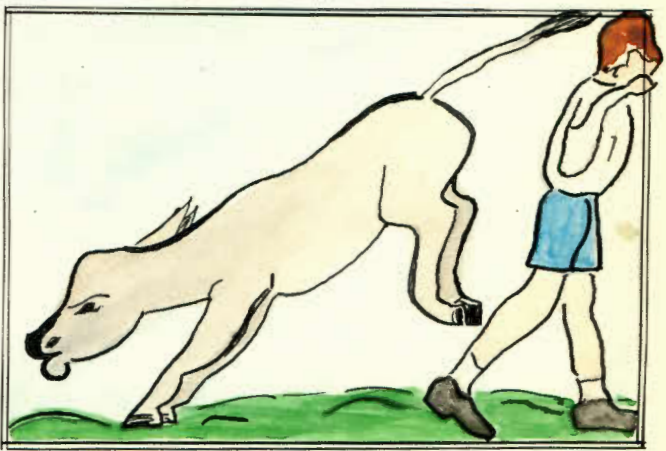


O
71P
76

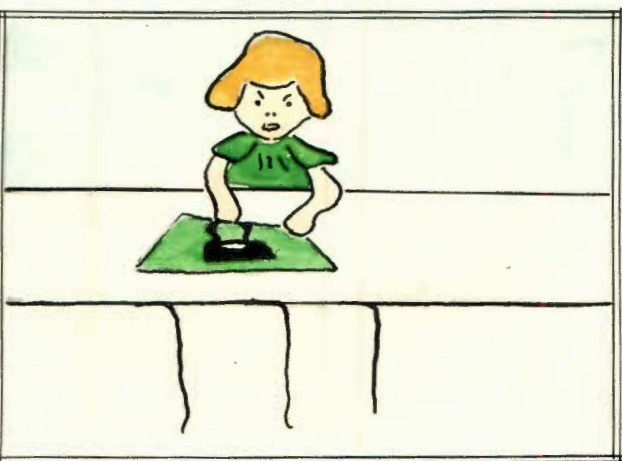
72



77



73



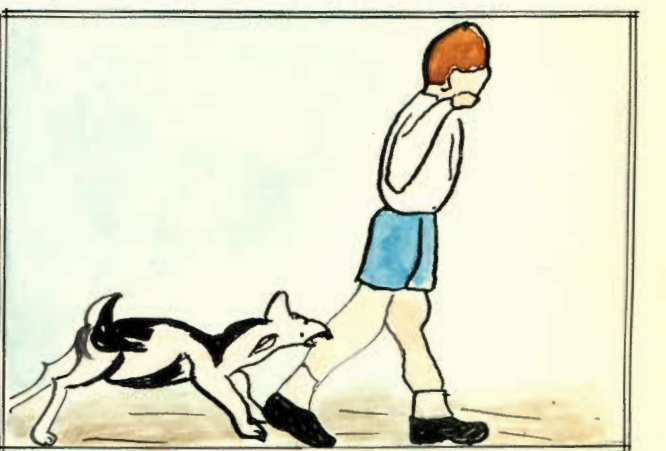
78



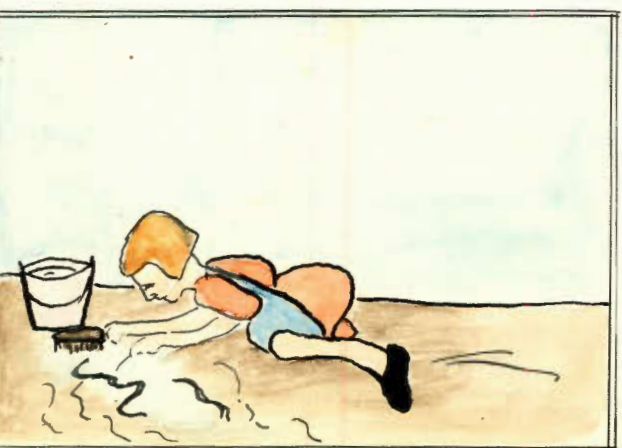
74



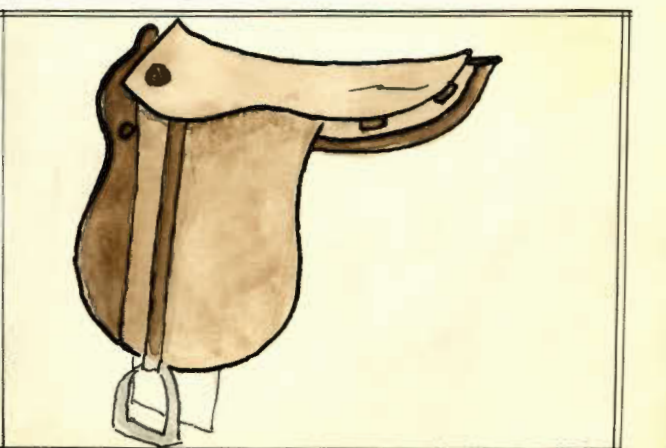
79



75



80



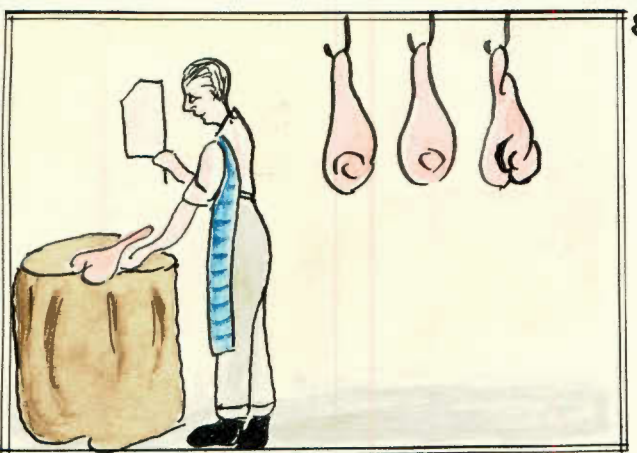
81



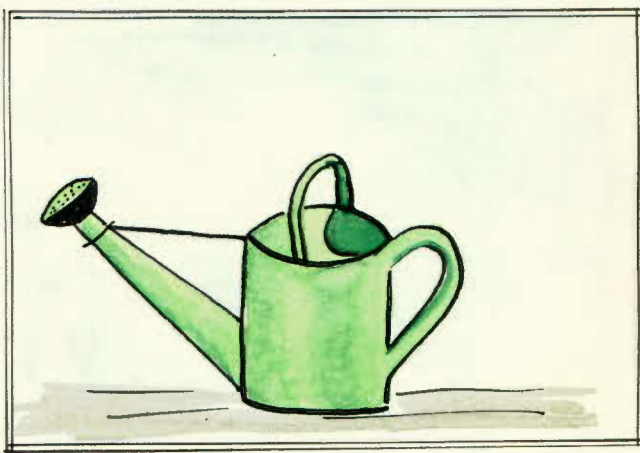
86



82



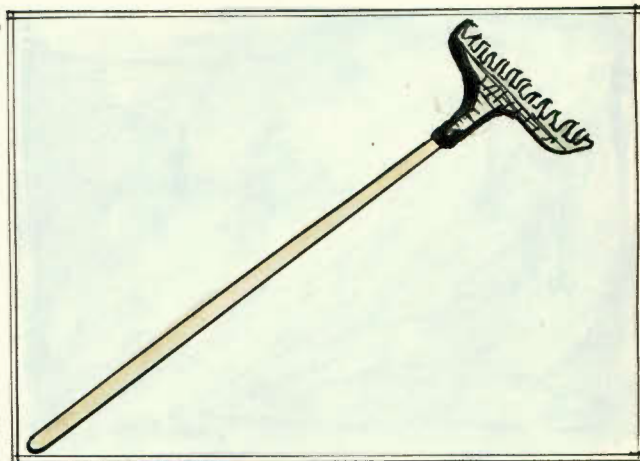
87



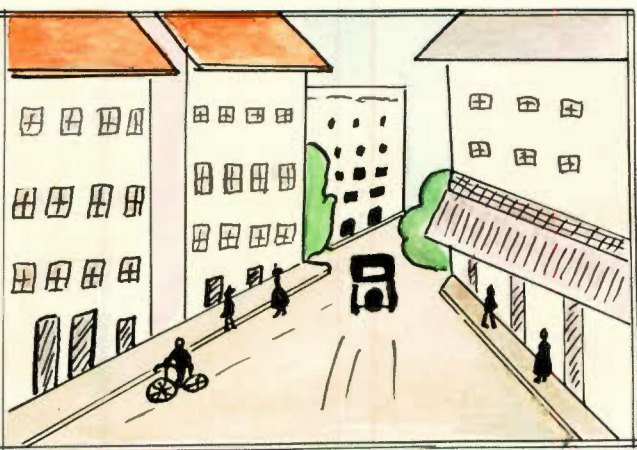
83



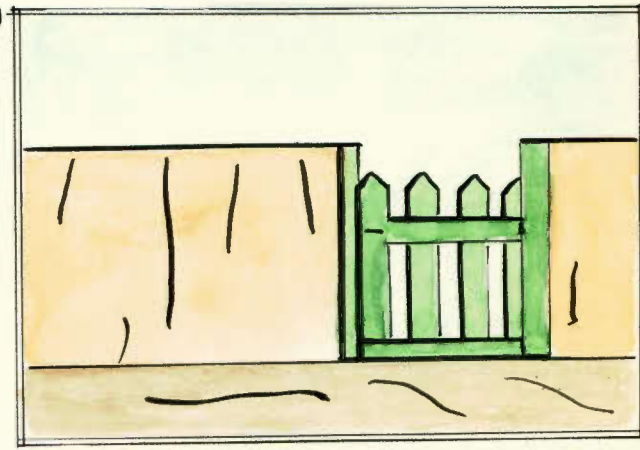
88



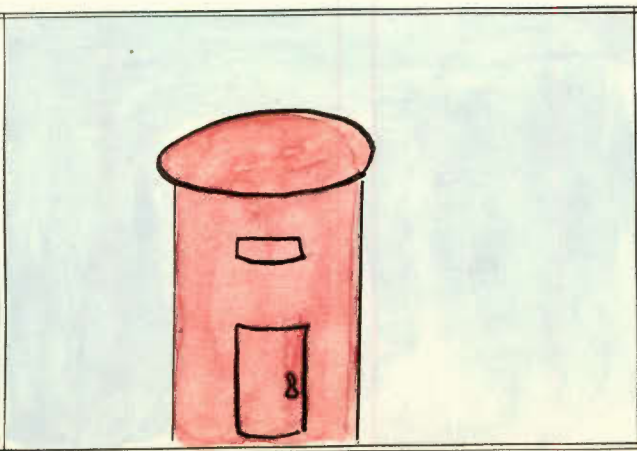
84



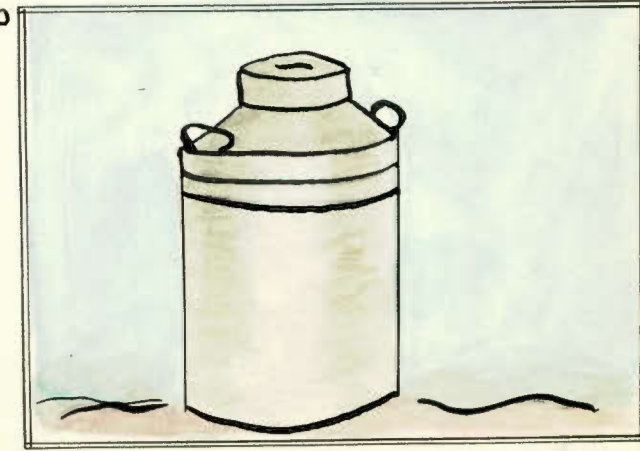
89

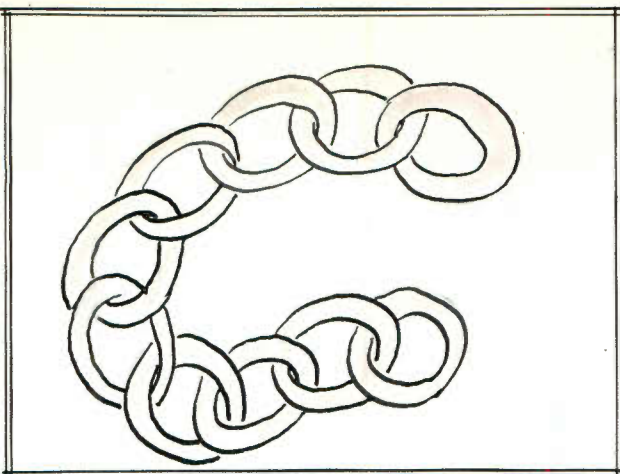
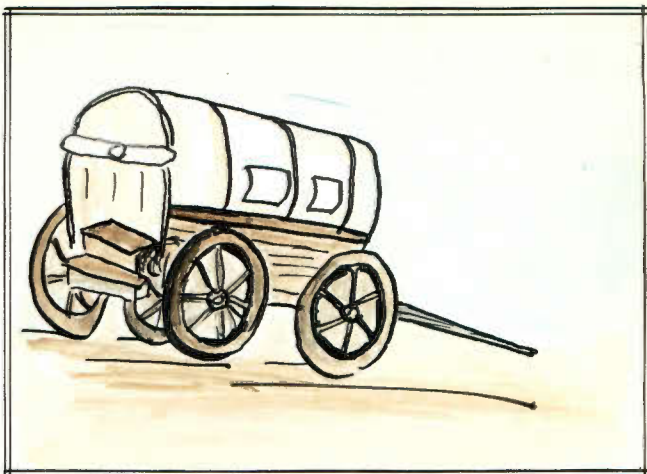


85

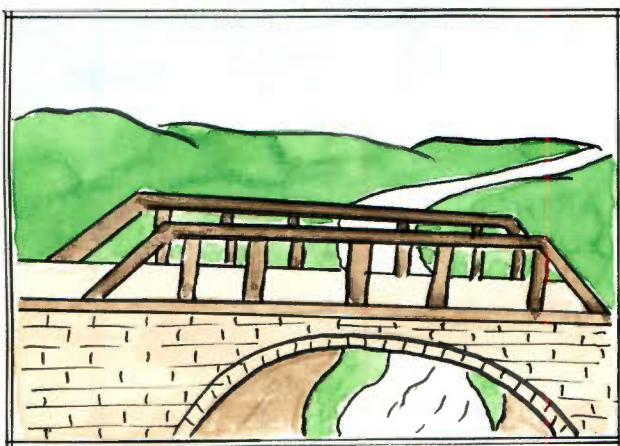


90

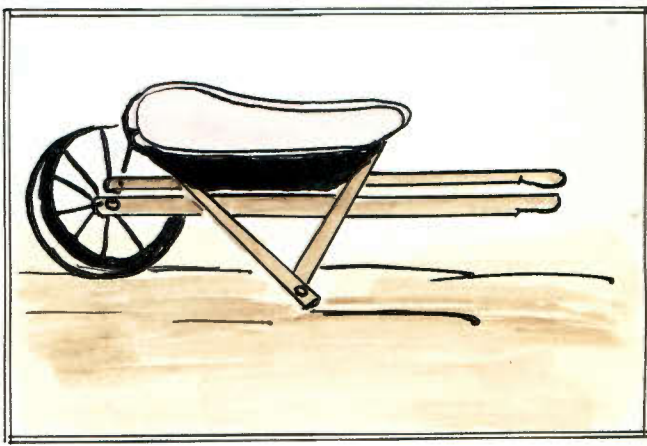


S
91T
96

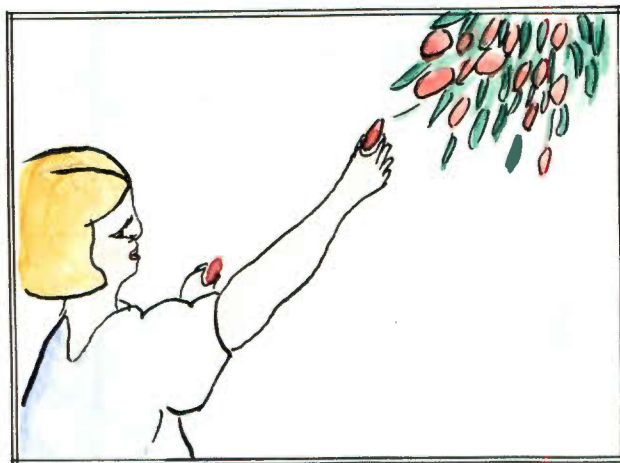
92



97



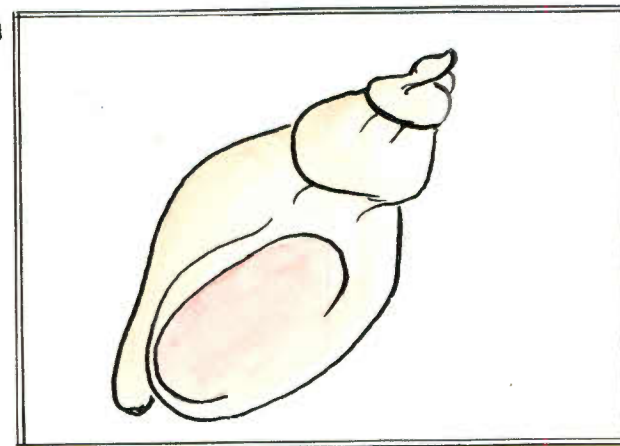
93



98



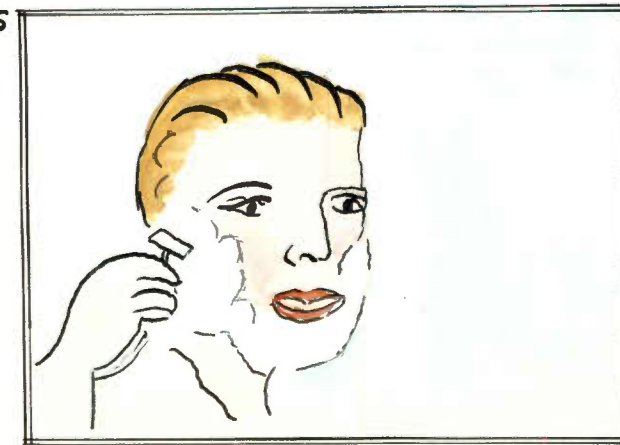
94



99



95



100



(d) MATERIALS FOR GRAMMAR TEST.A Set of 20 Pictures.

While carrying out the investigation in Vocabulary during 1937 (1) the writer was struck by the contamination revealed in idiom and grammatical structure as used by the pupils tested.

Therefore, when he wished to draw up a Grammar Test for this investigation, he used the Vocabulary Test and made a summary of the most common grammatical mistakes made, as well as of the Anglicisms and the Afrikanerisms used by the pupils tested.

He found that in English the 3rd Pers.Sing. proved difficult to pupils whose home language was Afrikaans, while the pupils whose first language was English found the correct use of the double negative in Afrikaans difficult.

Both groups of bilingual pupils found the use of the Past Tense and the Reflexive Pron. in the second language difficult.

The following barbarisms of Afrikaans origin were very common: "He is shaving him; he makes the door close; he makes his teeth clean; he makes the flowers wet; they throw the flowers wet; she throws sugar in the tea; he licks his hand off."

The following Anglicisms and loan-words occurred frequently in the answers given by the Ea pupils: "Hy lek homself; sy sit die suiker in die tee; sy sit self aan die vinger; die donkie spring af die balie; hy spin die top; sy swing."

Then a preliminary test was drawn up comprising a number of grammatical constructions and idioms. This test would, in the opinion of the investigator, be approximately of an equal degree of difficulty to both sections and would fall within the scope of the language ability of 6+ year old pupils. (11)

The use of the 3rd Pers.Sing. and the Pres.Cont. was included in the English test, and in the Afr.test the use of the Double Neg. The use of the Past Tense and the Reflex.Pron. was ^{embodied} in both tests.

Further testing was carried out and a record was kept of the answers. Extra pictures depicting actions with which the pupils were familiar were added, while some of the others were deleted.

1. See pages 11 - 15.

11. The correctness of this hypothesis is shown in the Conclusions: (a) Suitability of Tests, No.3 page 111.

Finally, a test was drawn up in English(i) and one in Afrikaans(ii) for both of which the same set of pictures could be used and in both of which, with the exception of Question 1, the same questions could be asked.

The bilingual pupils with English as first language found the actions in certain pictures easy to interpret but were inclined to use ^{Afrikanerisms} ~~Anglicisms~~ in interpreting others.(iii) On the other hand, the Ae pupils were inclined to use ^{Anglicisms} ~~Afrikanerisms~~ in interpreting some of the pictures.(iv) The rest offered more or less the same degree of difficulty to both sections.(v)

In the final Grammar Test in either language, a set of 20 pictures was used. Eleven of these were the same as used in the Vocabulary Test, and 9 additional pictures were drawn. Two of the pictures were used to test the correct use of the Double Negative in Afrikaans as well as of the Past Tense, both in English and Afrikaans; 2 pictures to test the child's knowledge in the use of the Reflexive Pronoun in either language, and 16 to test the correct use of language and idiom.

The answers accepted as correct in the English series of tests are given in Table III(vi) and those accepted as correct in the Afrikaans series of tests are given in Table IV(vii).

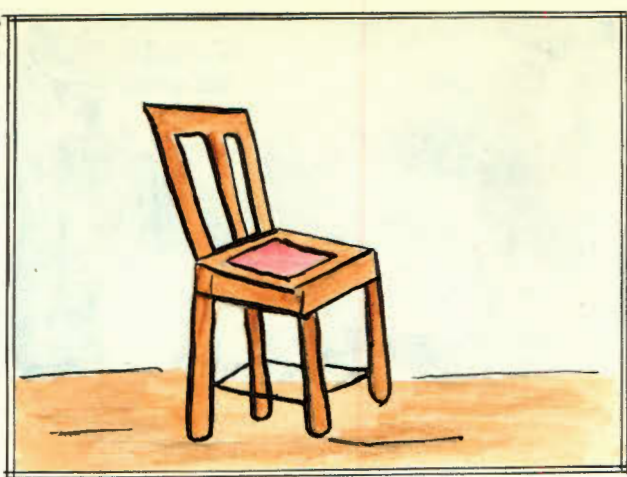
In Question 1a of the English series, the child's knowledge of the 3rd Pers. Sing. was recorded on the Mark Sheet(viii) and in Question 1b, the use of the Pres. Cont. No picture was used in either case. Every time the 3rd Pers. Sing. was used it was marked right or wrong. The same procedure was adopted in the case of the Pres. Continuous.

In Question 1 of the Afrikaans series, the child's knowledge of the Double Negative was tested by asking questions about a certain picture (the dog).(ix) The set of pictures representing the answers follows Table IV.

-
- i. See page 21.
 - ii. See page 22.
 - iii. e.g. IV Nos. 8,9,10,14 and 15, page 22.
 - iv. e.g. IV Nos. 2,4, 6, 7, and 13, page 21.
 - v. e.g. IV Nos. 1,3,5,11,12 and 16, pages 21 and 22.
 - vi. See page 21.
 - vii. See page 22.
 - viii. See Table VI, page 31.
 - ix. See Table VII, page 32 and picture 11b following page 22.

II

a.



b.



I

a.

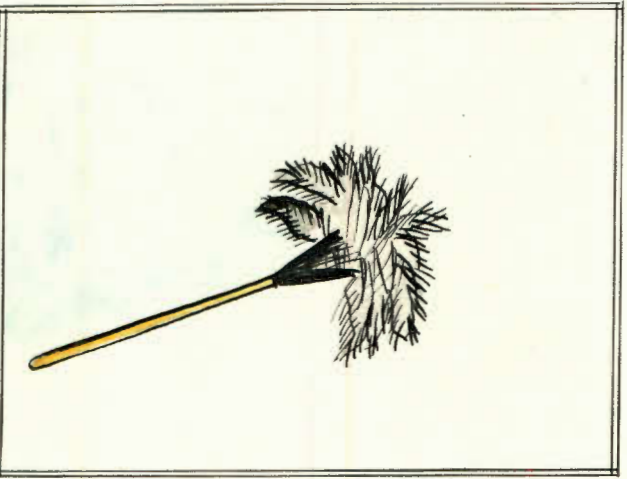


b.

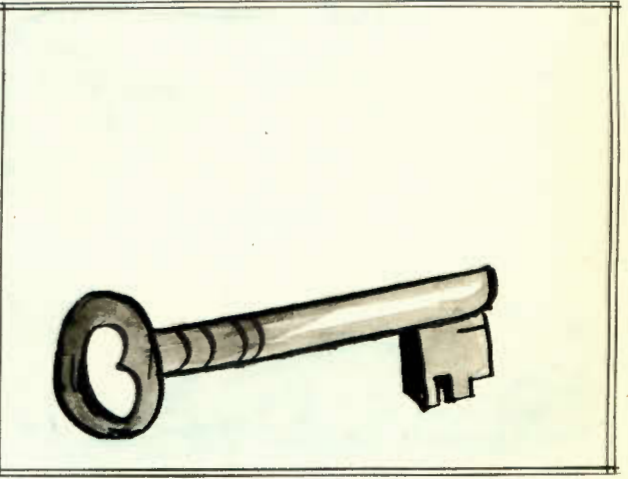


V

1



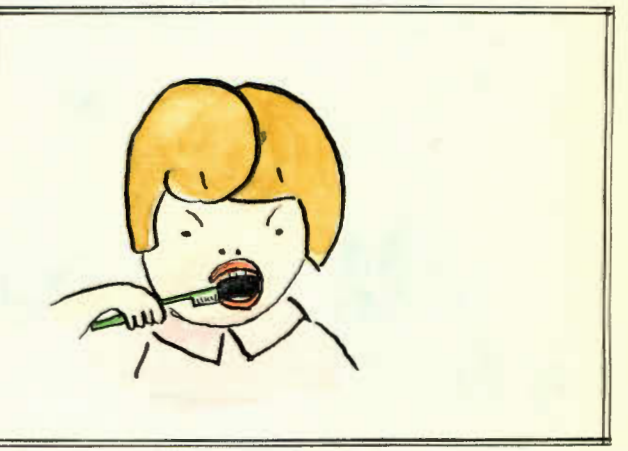
2



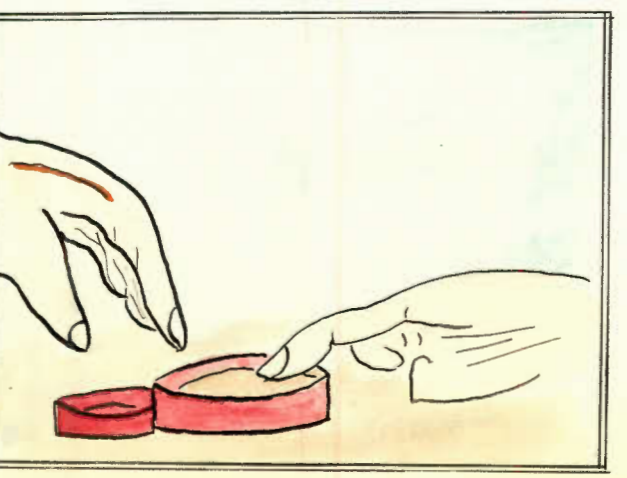
3



4



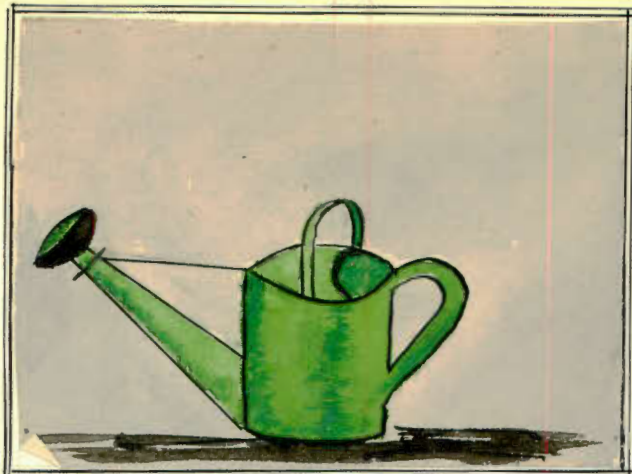
5



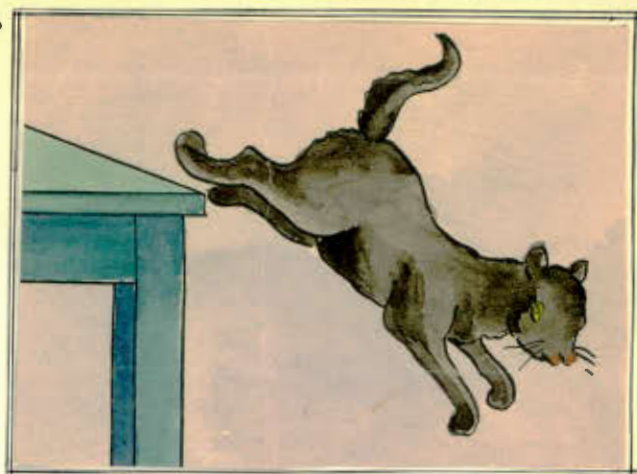
6



7



8



9



10



11



12



13



14



15



16

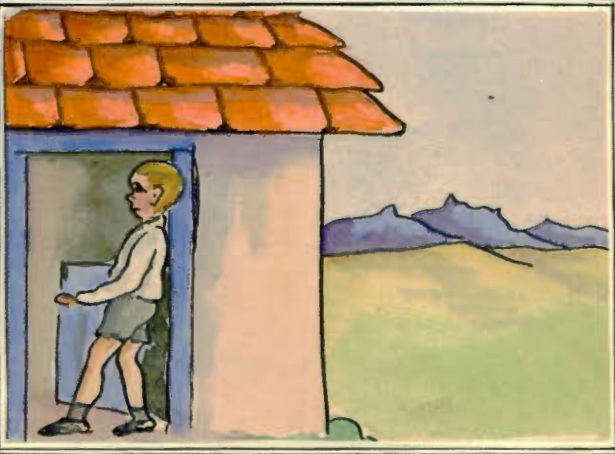


TABLE 111.ENGLISH GRAMMAR TEST.Answers accepted as correct.

1. (a) 3rd Pers. Sing.
(b) Pres. Continuous.
11. Past Tense: (a) Yesterday I sat on the chair.
(b) Yesterday I saw the dog.
111. Reflexive Pronouns: (a) She is washing herself.
(b) He is shaving himself.

IV.

IDIOM ETC.

1. You dust (the chairs etc.)
2. You lock (unlock) the door.
3. She is putting sugar in the tea.
4. She is brushing her teeth.
5. She is putting ointment on the cut.
6. The cat is licking his paw.
7. You water the garden (flowers).
8. The cat is jumping off the table.
9. He is putting on his coat.
10. He is taking off his hat.
11. He is lighting his pipe,
12. The boy is throwing a stone at the hare.
13. He is fastening his shoe.
14. He is looking after the sheep.
15. He is tearing (up) the paper.
16. He is walking into the house.

TABLE IV.AFRIKAANS GRAMMAR TEST.Answers taken as correct.

1. Negatief: (a) Ek kan nie die hondjie hoor nie.
(b) Nou sien ek nie die hondjie nie.
11. Verlede Tyd: (a) Gister het ek op die stoel gesit.
(b) Gister het ek die hond gesien.
111. Wederkerende Voornaamwoord: (a) Sy was haar.
(b) Hy skeer hom.

IV.

IDIOOM ENS.

1. Jy stof (die stoele ens.) af.
2. Jy sluit die deur oop (toe).
3. Sy gooi suiker in die tee.
4. Sy borsel haar tande.
5. Sy smeer self aan die sny.
6. Die kat lek sy poot (af).
7. Jy gooi (spuit) die tuin (blomme) nat.
8. Die kat spring van die tafel af.
9. Hy trek sy baadjie aan.
10. Hy haal sy hoed af.
11. Hy steek sy pyp op; hy steek sy pyp aan (die brand).
12. Die seun gooi die hasie met 'n klip.
13. Hy maak sy skoene vas.
14. Hy kyk na die skape. (Hy pas die skape op).
15. Hy skeur die papier (stukkend).
16. Hy loop in die huis in.

(e) SCHOOLS SELECTED.

As only a limited number of schools could be taken in the time available, the investigator thought it best to select representative European Schools in Port Elizabeth and Cape Town only for the unilingual and bilingual pupils, and a certain number of Control Schools.

1. PORT ELIZABETH.

With the help of the Circuit Inspector, Mr. G.J.Louw, certain schools were selected in order to obtain a fair sample of the English-speaking and Afrikaans-speaking pupils of Port Elizabeth. It was decided to test a number of unilingual pupils representative of their respective classes, and all the bilingual pupils in the schools selected. The following schools were selected for E pupils: the English-medium schools: North End, Sydenham and Ethel Valentine, and the parallel-medium schools: Walmer and Kensington.

For A pupils the following schools were selected: the Afrikaans-medium schools: Excelsior and Piet Retief, and the parallel-medium schools: Mackay, Kensington and Cunningham.

The Ea and Ae pupils of the age of 6 plus in those schools were all tested.

11. CAPE TOWN.

Here the English-medium schools: Observatory Boys' Junior, Observatory Girls' Junior, Mowbray, and Regent Street, and the parallel-medium school, Westcliffe, were selected for E pupils.

For A pupils the following schools were selected: The Afrikaans-medium Schools: Jan van Riebeeck, Nassau, and Simon van der Stel, and the parallel-medium schools: Westcliffe and Albert Road.

As in the case of the schools selected in Port Elizabeth, the Ea and Ae pupils of the required age group in these schools were all tested.

111. CONTROL SCHOOLS:-

Certain fee-paying English-medium schools were selected in Port Elizabeth and Cape Town and some of their pupils tested in order to compare the norms of performance of these EC pupils with those of the E pupils. In Port Elizabeth a certain number of pupils of the required age group were tested in Grey Junior and Collegiate Junior, and in Cape Town a number of pupils of Rondebosch Boys' Preparatory and Rustenburg Girls' Junior.

It was difficult to obtain AC pupils, (i.e. unilingual Afrikaans-speaking pupils with a social-economic status and/or from homes with an intellectual background approximately equal to that of the EC pupils) in the cities, because most of the Afrikaans-speaking pupils with the required social-economic status and of the required age group, were bilingual. Therefore it was necessary to go further afield.

In the vicinity of Cape Town these pupils were selected from Bloemhof (Stellenbosch), and from the Malmesbury Primary School.

In Port Elizabeth and environs six pupils of the Kirkwood Primary School were selected, and six unilingual children of Afrikaans-speaking teachers in Port Elizabeth. It must therefore be pointed out that whereas the EC pupils were all living in the cities, 24 out of the 30 AC pupils were selected from country schools.

The question of how this selection of AC pupils from country schools affects comparisons with EC pupils (i) and A pupils (ii) is discussed further in the Conclusions.

1. (a) Suitability of Tests: Nos. 1, 3, and 5, pages 109, 111 and 111 ~~res~~pectively.
- ii. (b) Performance: No. 1, page 112.
- (c) Contamination: No. 2, page 120.

CHAPTER 3.

PROCEDURE IN TESTING.

(a) Selecting Pupils.

The principals of the schools selected were asked to furnish a list of unilingual pupils of the age group 6 plus and a list of bilingual pupils (if any) of the same age group. In some schools, where it was decided to test a limited number (say 10) of unilingual pupils, a list of about 12 pupils representative of the class, was provided. Other information asked for included the date of birth, the address and the occupation of the parent. The principals concerned were all very willing to assist, and with the help of the Kindergarted mistresses all the information asked for was promptly provided.

(b) Test Arrangements.

1. Port Elizabeth.

In Port Elizabeth the testing started in the beginning of June, 1945, and was carried on to the first week of August. As the investigator was teaching at the time he could not test pupils during school hours except during the last week when he was on leave. Consequently he had to go to the houses of the pupils concerned. During the June - July vacation the testing was continued.

Before he started testing he was anxious to find out whether a suitable atmosphere could be created in the child's home and whether any factor deleterious to the required conditions would obtrude itself.

The investigator had already had experience in testing over 250 pupils with part of the same test materials and over 50 pupils in the preliminary testing. He was, therefore, able to detect any adverse influence, if any should arise. As far as he could judge there was none.

He went to each address given and said that he was a teacher who made a study of the vocabulary of pupils of 6 years of age and asked whether he might be allowed to test the child concerned. Without any exception the parents concerned were very willing to co-operate, sent for the child and provided all the facilities needed. The investigator had been in Port Elizabeth for 11 years and quite a number of the parents concerned knew him or knew about him. He sat on a chair and had the set of 12 pages of pictures and the Mark Sheet(1) on a table in front of him. He usually told the child that he had a set of pictures that he would like to show him/her to find out how many of them he/she knew; and asked whether he/she would like to see the pictures. Usually the child was anxious to see the pictures and to show his/her knowledge, especially if he/she was told that a class-mate had already seen them. The investigator usually asked the child whether he/she understood and spoke both official languages, and if so, which one he/she knew best. A bilingual child was tested in both, first in the one he/she professed to be his/her first language and then in the second. The investigator filled in the Information Sheet(ii) on the opposite side of the Mark Sheet, usually from information that he already had concerning the child. He asked for the information again in order to check up.

Then he questioned the child, starting with the vocabulary. He ticked off the right answers and wrote down the answers that deviated from those regarded as correct. This was necessary, especially in the case of bilingual pupils, because although the score in the second language was not used, the investigator could not always be certain which was the first language of a bilingual/.....

1. See Tables VI, and VII, pp. 31 and 32.

ii. See Table V, page 30.

bilingual child until he had tested him/her. The child might start off by saying that he/she was English-speaking with a knowledge of Afrikaans, and it might turn out that he/she definitely understood and spoke Afrikaans better.

Usually the investigator was alone with the test pupil but sometimes older brothers and/or sisters or other relatives were present. The child was usually so keen on showing his/her knowledge that the presence of other people in the room did not distract him/her, and the people concerned were not allowed to prompt him/her or to take part in the test.

At the end of the test the brothers or sisters sometimes asked the investigator whether he did not have a test to set them also, and if he said that he tested 6 year old children only, a neighbour's child might say that his/her little brother/sister was 6 years old and might ask the investigator to come and show him/her the pictures also. The parents usually took a keen interest in the testing and liked to discuss the child's progress in school and expressed the wish to have the elder children^{tested} also. At the end the parents usually thanked the investigator for his interest in the children concerned.

The test usually took from fifteen to twenty minutes for unilingual pupils and from twenty-five to forty minutes for bilingual pupils.

During the first week of August the testing was carried out during school hours. A separate room, usually the library, was set aside for the purpose.

11. Kirkwood.

On a Saturday, in the beginning of June, the pupils selected at Kirkwood were tested. The principal and Kindergarten mistresses kindly made the necessary arrangements for the pupils concerned to come to school. The pupils played on the school grounds and were called in one by one to a class-room where they were/.....

were tested in the presence of the principal and the class-teachers. The arrangements were efficiently made and no emotional factors arose.

111. Cape Town and Environs.

From the second week in August up to the middle of September the testing was continued in Cape Town, Malmesbury and Stellenbosch. There also facilities were granted by the principals of the schools selected and valuable assistance was given by the Kindergarten Mistresses concerned.

The principal usually asked the class-teacher to give all the help she could. She helped with the selection of the pupils and afterwards made a list of the pupils selected with all relevant information asked for, while the investigator carried on the testing in a room provided by the principal. After a pupil had been tested he/she went to fetch the next. Sometimes the investigator allowed the one who had just finished to stay on while the next one was being tested. As a rule they were eager to stay and took a keen interest in the performance of the others and often one asked permission to stay on, but it was explained to him/her that it was only fair that the next one should get a chance of looking on. On a few occasions the same pupils stayed on for the whole morning, fetched the test pupils, and even started questioning them while the investigator was still busy with the Information Sheet. The way in which the questions were asked proved how observant the test pupils were. Thus the tests were carried on in the spirit of a game and right through the atmosphere was very pleasant.

The pupils tested had already been to school for some months, seeing that the testing in Port Elizabeth started in June when the youngest pupils were those who had been admitted in January. When the tests were carried out in Cape Town there were

pupils/.....

pupils who had been admitted in July, but it was considered wiser to test preferably those pupils who had been admitted in January, as long as they were in the 6 plus age group.

In this investigation over 400 pupils were tested altogether, i.e. in the preliminary and the final tests. In the latter 317 were tested.

On the following pages are given the Information Sheet, the English Mark Sheet, the Afrikaans Mark Sheet, and a classified list of the pupils tested, in Tables V to VIII.

TABLE V.INFORMATION SHEET.

Name of Child:-

Standard and Medium:-

School:-

Date of Birth:-

Date of Testing:-

Address:-

Father's Occupation:-

Mother's Occupation(if any):-

How often does the child speak

English to Father:-

Mother:-

Brothers and Sisters:-

Other Relatives:-

Friends:-

How often does the child speak

Afrikaans to Father:-

Mother:-

Brothers and Sisters:-

Other Relatives:-

Friends:-

Church:-

Sunday School:-

Any other relevant Information:-

TABLE VI.ENGLISH MARK SHEET.A. VOCABULARY.(1)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										

B. GRAMMAR.(11)

1. (a) 3rd Pers. Sing.:

(b) Pres. Continuous:

11. Past Tense: (a) I sit on a chair; yesterday.....

(b) I see the dog; yesterday.....

111. Reflexive Pronoun: (a) She is washing.....

(b) He is shaving.....

1V. IDIOMS ETC.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.

1. See Test Words for English Vocabulary, page 17, and list of Pictures following page 18.
 ii. See English Grammar Test, page 21.

TABLE VII.

AFRIKAANS MARK SHEET.A. VOCABULARY.(i)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										

B. GRAMMAR.(ii)

1. Negatief: (a) Kan ek die hond hoor? Ek kan nie.....
 (b) Nou sien ek die hond; nou sien ek nie..
11. Verlede Tyd: (a) Ek sit op die stoel; gister.....
 (b) Ek sien die hond; gister.....
111. Wederkerende Voornaamwoord: (a) Sy was.....
 (b) Hy skeer.....

IV. IDIOME ENS.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.

- i. See Test Words for Afrikaans Vocabulary, page 18, and list of Pictures following.
11. See Afrikaans Grammar Test, page 22.

TABLE VIII.

PUPILS TESTED.

	EE Boys	EE Girls	A Boys	A Girls	Ea Boys	Ea Girls	As Boys	As Girls	EC Boys	EC Girls	AC Boys	AC Girls	TOTALS
North End	6	6			4	3	2	2					23
Sydenham	8	8			3	3	1	1					29
Ethel Valentine		2			2	1	1	2					8
Walmer	4	4						2					10
Kensington	2		3	3	1	1	2	1					13
Cunningham			3	1									4
Mackay			2	6		1	5	3					17
Excelsior			11	7			2	2					22
Piet Retief			1	3									4
P. E. Totals	20	20	20	20	10	14	13	13					130
Obs. Boys' Jun.	10				4		2						16
Obs. Girls' Jun.		10				1		1					12
Mowbray		7			1	1							9
Regent Street	5				2								7
Westcliffe	5	3	1		2								11
Albert Road			3	4	4	2	4						17
Jan v. Riebeeck			7	5	2	3	3	4					24
Nassau			5	6	2	1	2	2					18
Simon v. d. Stel			4	5	1	1	1	1					13
C.T. Totals	20	20	20	20	18	9	12	8					127
P.E. + C.T.	40	40	40	40	28	23	25	21					257
Grey Junior									6				6
Collegiate Jun.										6			6
Kirkwood											3	3	6
Port Elizabeth											3	3	6
Rondebosch Boys'									9				9
Rustenburg Girls'										9			9
Malmesbury											5	3	8
Bloemhof (Stellenbosch)											4	6	10
Control Schools									15	15	15	15	60
Totals													
Grand Totals	40	40	40	40	28	23	25	21	15	15	15	15	317

(c) How the Questions were asked.A. Vocabulary:(1)

Usually the investigator pointed to the picture or to any particular part of it and simply asked the question: "What is this?" or "What does the boy/girl do?" In cases where the picture represented a certain situation he had to explain the particular situation to a certain extent in order to get the description or the interpretation from the test pupil, e.g.:

1. "What part of the house do you see above the walls?"
(The Roof).
12. "On what part of the bed do I lie with my head?"
(The Pillow).
13. "On what is the tea-pot standing?" (A Tray).
24. "What is this that I need when I want to buy something?"
(Money).
27. "What is the cock doing?" (Crowing).
31. "Here are two lines. This one is straight; and this one?"
(Crooked).
34. "This girl has bought something in the shop. What is she doing now? Remember, if you have bought something you must?" (Pay).
35. "This girl is standing with her father and mother. Do you know one word for your father and mother? They are your...?"
(Parents).
38. "What is behind this girl when she is walking in the sun?"
(Shadow).
39. "Have you heard the thunder already? What do you see in the sky when you hear the thunder?"
(Lightning).

-
1. See Table 1, p. 17, and list of Pictures following p. 18.

54. "This girl is sleepy; what is she doing now?" (Yawning).
 66. "The teacher has given this boy a piece of chalk; what is he doing on the board?" (Drawing).

In some cases alternative answers were allowed, e.g. calendar, almanac; axe, chopper; apron, pinafore; glasses, spectacles; grate, fire-place; lantern, lamp; pillar-box, letter-box, post-box, posting-box; ointment, salve.

The questions were asked in a similar manner in Afrikaans and the replies were evaluated in the same way.(i)

In Afrikaans some alternatives were also allowed, e.g. blaker, kandelaar; kaggel, vuurherd; lamp, lantern; sy swaai, sy ry skoppelmaai.

B. Grammar.

English:(ii)

1. (a) 3rd Pers. Sing.
- (b) Pres. Continuous.

(No questions were asked here. Whenever the 3rd Pers. Sing. and/or the Pres. Continuous were used during the test they were marked right or wrong.)

11. (a) "I say: 'I sit on the chair'. If I want to tell my father about it to-morrow, how will I say it? You tell me. Begin: 'Daddy, yesterday I'".

(b) "I say: 'I see the dog'. If I want to tell my father about it to-morrow, what will I say? 'Daddy, yesterday I'".

111. (a) "What is this girl doing?" (Washing herself).
- (b) "What is this man doing?" (Shaving himself.)

- 1V. 1. "What do you do with this?" (Dust chairs etc.)
2. "What do I do with this?" (Lock, Unlock).
3. "What is your mother doing here?"

(Putting in sugar).

1. See Table 11, page 18, and list of Pictures following.

11. See English Grammar Test, Table 111, page 21, and list of Pictures following page 22.

4. "What is this girl doing?" (Brushing teeth).
5. "There is a cut on this girl's finger. What is her mother doing?" (Putting on ointment).
6. "What is the cat doing?" (Licking his paw).
7. "What do you do with this?" (Water the garden etc.).
8. "The cat was sitting on the table when the dog came in.
"What is he doing now?" (Jumping off the table).
9. "What is this man doing?" (Putting on his coat).
10. "What is this man doing?" (Taking off his hat).
11. "This man wants to smoke. What is he doing now?"
(Lighting his pipe).
12. "Show me the hare running, the stone, and the boy. What is the boy doing?" (Throwing a stone at the hare).
13. "This man has put on his shoes. What is he doing now?"
(Fastening his shoe).
14. "What is this shepherd doing?" (Looking after the sheep).
15. "This boy does not want the paper any more. What is he doing with it?" (Tearing it).
16. "Where is this boy going?" (Into the house).

Afrikaans:(1)

1. (a) "Kan ek die hondjie hoor? Nee, ek kan nie die ~~h~~ hondjie....." (hoor nie).
- (b) "Nou sien ek die hondjie; nou(ii) sien ek nie....!"
(die hondjie nie).
11. (a) "Ek sê: 'Ek sit op die stoel'. Mōre wil ek vir my Pappie daarvan vertel. Dan sê ek: 'Pappie, gister.....'" (het ek op die stoel gesit).
- (b) "Ek sê: 'Ek sien die hond'. Mōre wil ek vir my Pappie daarvan vertel. Dan sê ek: 'Pappie, gister.....'" (het ek die hond gesien).

-
1. See Afrikaans Grammar Test, Table IV, page 22, and list of Pictures following.
 11. While the investigator placed his hand over the picture of the dog.

111. (a) "Wat maak die meisietjie?" (Sy was haar).
 (b) "Wat maak die man?" (Hy skeer hom).
- 1V. 1. "Wat maak jy hiermee?" (Stof af).
 2. "Wat maak jy hiermee?" (Sluit die deur oop/toe)
 3. "Wat doen jou Mammie hier?" (Gooi suiker in tee)
 4. "Wat doen hierdie kind?" (Borsel tande).
 5. "Daar is 'n sny in die kind se vinger.
 "Wat doen haar Mammie?" (Smeer salf aan).
 6. "Wat maak die kat?" (Lek sy poot(af)).
 7. "Wat maak jy hiermee?" (Gooi/spuit tuin nat).
 8. "Die kat het op die tafel gesit. Toe kom die
 hond in. Wat maak hy nou?" (Spring van tafel af)
 9. "Wat maak die man?" (Trek sy baadjie aan).
 10. "Wat maak hierdie man?" (Haal sy hoed af).
 11. "Hierdie man wil rook. Wat doen hy nou?"
 (Steek sy pyp op).
 12. "Wys my die hasie, die seun, en die klip. Wat
 maak die seun?" (Gooi die hasie met 'n klip).
 13. "Die man het sy skoene aangetrek, Wat maak hy
 nou?" (Maak sy skoene vas).
 14. "Wat doen hierdie skaapwagter?"
 (Kyk na die skape/pas die skape op).
 15. "Die seun wil nie meer die papier hê nie. Wat
 doen hy nou?" (Skeur dit (stukkend)).
 16. "Waarheen gaan hierdie seun?" (In die huis in).
- (d) How the Answers were marked.

After the testing had been completed the investigator drew up a scheme of marking the answers in order to find:

- A. Performance in
 1. Vocabulary,
 2. Grammar.
- B. Contamination in
 1. Vocabulary,
 2. Grammar.

In the case of bilingual pupils the answers on both Mark Sheets were marked and then the investigator decided which was the first language and the scores of the latter language only were tabulated.

The answers were marked according to the following scheme:

A. Performance:

1. Vocabulary: 1 mark for every correct answer, i.e. a possible 100 marks.

2. In Grammar(i) the following marks were given for correct answers:

1.	(a) and (b):	$1\frac{1}{2}$	+	$1\frac{1}{2}$	=	3 marks.
11.	(a) " (b):	$1\frac{1}{2}$	+	$1\frac{1}{2}$	=	3 marks.
111.	(a) " (b):	$1\frac{1}{2}$	+	$1\frac{1}{2}$	=	3 marks.
1V.	1 - 16:	1	X	16	=	16 marks.

Total = 25 marks.

Then the total was multiplied by 4 in order to reduce it to a percentage score.

B. Contamination:

1. Vocabulary: 1 mark was given for every test word which was given in the wrong medium, e.g. where a pupils called "kombuis" a kitchen, and for a barbarism like "brille" which was sometimes used in the sense of "n Brill", (frequently used by some of the A and the Ae pupils), or "stickings away", (used by some of the E and the Ea pupils in Port Elizabeth).

2. In Grammar the following marks were given for a wrong answer which showed signs of contamination by the other language:

1.	(a) and (b):	$1\frac{1}{2}$	+	$1\frac{1}{2}$	=	3 marks.
11.	(a) " (b):	$1\frac{1}{2}$	+	$1\frac{1}{2}$	=	3 marks.
111.	(a) " (b):	$1\frac{1}{2}$	+	$1\frac{1}{2}$	=	3 marks.
1V.	1 - 16:	1	X	16	=	16 marks.

Total = 25 marks.

The total was then reduced to a percentage score.

1. The scheme of marking of the Grammar Test in either language was drawn up on an empirical basis, the intention being to give more weight to the set of idioms in 1V than to the more limited sets of specific points contained in 1, 11 and 111. On the other hand, if all the questions had received 1 mark each, the weight given to the first three sets would be lower than was desired. On trial the weighting explained above gave a good distribution of the scores.

CHAPTER 4.

OBSERVATIONS

Schools were selected which were representative of Port Elizabeth and Cape Town. From these schools unilingual pupils were selected who were representative of their classes, and all the bilingual pupils of the required age group in the schools selected were tested. Consequently it was considered unnecessary to find the I.Q. of the test pupils.

Although the I.Q. was not found the investigator could observe from the answers given that some pupils were more intelligent than others.

As a rule it was only necessary to point to a picture or to any particular part of it and/or to ask a question about a certain action represented in a picture in order to get the required answer.

In other cases a further question was necessary in order to elicit a correct answer, e.g. to the question: "On what do your mother's plates rest here?" the child might answer: "The kitchen-dresser". A further question, e.g.: "What part of the kitchen-dresser?" was necessary to elicit the correct answer: "Shelves".(i)

In Question 111(ii) of the Grammar Test the child might answer that the girl was washing and that the man was shaving. The further questions: "Whom is she washing?", and "Whom is he shaving?" usually elicited the correct answers: "Herself" and "Himself" respectively.

Usually the teachers' estimate of their pupils' linguistic ability was fairly accurate, especially in the Afrikaans-medium schools where the teaching of English is started early by conversational methods. In several cases the class-teacher had already/.....

-
- (i) See Picture No.5 in the list of Pictures following p. 18.
 (ii) See English Grammar Test, Table 111, p. 21, and Pictures 111a and 111b following p. 22.

already found out that some of her pupils would have been more at home in an English-medium class. In those cases the tests as a rule verified the findings of the teacher concerned.

In other cases, (in both English-medium and Afrikaans-medium classes), certain pupils had been classified by the class-teachers as unilingual and the test revealed that they definitely understood and spoke the second language.

In Port Elizabeth not one of the Ea pupils tested was found in an Afrikaans-medium class, but in Cape Town some bilingual pupils who understood and spoke English better than Afrikaans were found in Afrikaans-medium schools and in the Afrikaans-medium section of one of the parallel-medium schools. In fact, 12 (i.e. 44.4 per cent) out of the 27 Ea pupils tested were in Afrikaans-medium classes.(i)

In some of the English-medium schools, and in the English section of some of the parallel-medium schools in Port Elizabeth and Cape Town bilingual pupils were tested who definitely understood and spoke Afrikaans better than English.

In Port Elizabeth 16 (i.e. 61.5 per cent) of the 26, and in Cape Town 3 (i.e. 15 per cent) of the 20 Ae pupils tested were in English-medium classes.(ii)

In the following two pages, in Tables lX and X, are given tabulated lists of Ea and Ae pupils tested. These lists show the numbers and percentages of bilingual pupils in the "wrong-medium" section. Further details are given on pages 43 - 49.

(i) See Table lX, page 41.

(ii) See Table X, page 42.

TABLE 1X.Ea PUPILS.PORT ELIZABETH.

		Eng. Section	Afr. Section	Boys	Girls	Totals
North End	English-Med.	7		4	3	7
Sydenham	English-Med.	11		3	8	11
Ethel Valentine	English-Med.	3		2	1	3
Mackay	Parallel-Med.	1			1	1
Kensington	" "	2		1	1	2
Totals		24	0	10	14	24
Per Cent		100	0			

CAPE TOWN.

Obs. Boys' Jun.	English-Med.	4		4		4
Obs. Girls' Jun.	" "	1			1	1
Mowbray	" "	2		1	1	2
Regent Street	" "	2		2		2
Westcliffe	Parallel-Med.	2		2		2
Albert Road	" "	4	2	4	2	6
J.v. Riebeeck	Afrikaans-Med.		5	2	3	5
Nassau	" "		3	2	1	3
S.v.d. Stel	" "		2	1	1	2
Totals		15	12	18	9	27
Per Cent		55.6	44.4			
Grand Totals		39	12	28	23	51
Per Cent		76.5	23.5			

TABLE X.

As PUPILS.PORT ELIZABETH.

		Afr. Section	Eng. Section	Boys	Girls	Totals
Excelsior	Afrikaans-Med.	4		2	2	4
Mackay	Parallel-Med.	4	4	5	3	8
Kensington	" "		3	2	1	3
Walmer	" "	2			2	2
North End	English-Med.		4	2	2	4
Sydenham	" "		2	1	1	2
Ethel Valentine	" "		3	1	2	3
Totals		10	16	13	13	26
Per Cent		38.5	61.5			
<u>CAPE TOWN.</u>						
J.v.Riebeeck	Afrikaans-Med.	7		3	4	7
Nassau	" "	4		2	2	4
S.v.d.Stel	" "	2		1	1	2
Albert Road	Parallel-Med.	4		4		4
Obs.Boys'Jun.	English-Med.		2	2		2
Obs.Girls'Jun.	" "		1		1	1
Totals		17	3	12	8	20
Per Cent		85	15			
Grand Totals		27	19	25	21	46
Per Cent		58.7	41.3			

It does not fall within the scope of this thesis to determine the reasons why some pupils were in the "wrong-medium" section, but in the course of the investigation into the history of the individual cases, several factors were revealed which contributed towards this state of affairs.

In some cases the Ae pupils in the English-medium classes had been admitted via English-medium Convent Schools, while in other cases the parents believing it to be in the interest of their children to be taught through the medium of English, had told the principal that the children concerned spoke English at home.

As far as the Ea pupils in the Afrikaans-medium classes were concerned, they usually came from homes where the parents, although they were Afrikaans-speaking themselves, often or mostly spoke English to their children in order to enable them to become efficient in English, but when the time came for them to be sent to school, they were sent to Afrikaans-medium schools on account of sentimental reasons.

But sometimes, in either case, one of the parents was English-speaking and the other Afrikaans-speaking and it had consequently been difficult to decide which language the child understood and spoke best. In such cases other factors might influence the choice of a school, e.g. whether the parents were in favour of co-education for boys and girls or not, the nearness of a good school etc.

In this investigation it was necessary to determine which was the test pupil's first language(1) because in the case of bilingual pupils the norm of performance and the contamination in the first language only were tabulated.

Usually it was fairly obvious which was the first language but/.....

(1) First language, home language, mother-tongue are used synonymously for the language the child understands and speaks best.

but sometimes the investigator found it not such a simple matter to decide.

The child's first language was determined in the following way: In each language the Vocabulary Score was added to the Grammar Score and the sum of the scores was compared for each language, thus:-

Case 1:

Afr.Voc. 67(Contamination 11),Afr.Gram.80(Cont.12);

Eng. " 63(" 2),Eng. " 48(" 50).

The pupil thus scored $67+80 = 147$ marks, or 73.5 per cent in the complete Afrikaans test, the Contamination being $11+12 = 23$, or 11.5 per cent. The corresponding figures in the complete English test were $63+50 = 113$ marks, or 56.5 per cent, and $2+50 = 52$ marks or 26 per cent, respectively. From these results it followed that the child's first language was Afrikaans. This was confirmed by information obtained from the child that he mostly spoke Afrikaans to his parents and friends

Case 2:

Eng.Voc.80 (Cont.3); Eng.Gram.88 (Cont 8);

Afr. " 85 (" 3); Afr. " 72 (" 20);

i.e. Eng. " +Gram.168, or 84 per cent;Cont.11,or 5.5 per cent;

Afr. " + " 157, or 78.5 " "; " 23,or 11.5 " "

Although this child scored 5 per cent more in the Afrikaans Vocabulary than in the English Vocabulary, the result of the total language test revealed that the child's first language was English. This was confirmed by the child's parents, who stated that the father mostly spoke Afrikaans to her and the mother mostly English, and that, in their opinion, she understood and spoke English slightly better than Afrikaans.

Case 3:

Afr.Voc.71 (Cont.6); Afr.Gram. 56 (Cont.34);

Eng. " 53 (" 0); Eng. " 52 (" 8);

Afr.Voc.+Gram.127, or 63.5 per cent;Cont.40, or 20 per cent;

Eng. " + " 105, or 52.5 " " ; " 8, or 4 " "

Although the contamination in Afrikaans was high, Afrikaans was the first language. This was confirmed by information that the child spoke both official languages at home but that she spoke more Afrikaans than English, and that she went to the D.R.Church and Sunday School.

Here follow lists of bilingual pupils in the "wrong-medium" section:(1)

1. Port Elizabeth.

Ae pupils in the English-medium Section.

1. Y-. (Mackay)

Afr.Voc. 67 (Cont.11), Afr.Gram.80(Cont.12);

Eng.Voc. 63 (Cont. 2), Eng.Gram.48(Cont.50);(11)

father a gate-keeper on the S.A.R.; mostly Afrikaans to parents and friends; English Church and English Sunday School.

2. E-. (Mackay)

A 72 (11), 78 (20); E 70 (1), 50 (44);

brother of No.L.

3. M-. (Mackay)

A 66 (10), 88 (8); E very weak; (iii)

father working at Cement Factory; mostly Afrikaans to parents and friends; D.R.Church and Sunday School.

4. V-. (Mackay)

A 60 (8), 78 (12); E very weak;

father died on Active Service; mother working; mostly Afrikaans to mother and sisters; came from Convent School.

5. M-. (Kensington)

A 80 (5), 92 (0); E weak;

father on Active Service; mother working; sometimes English to father; always Afrikaans to mother and grandmother; R.C.Church.

(1) See list of Ea Pupils, Table 1X, page 41.
and list of Ae Pupils, Table X, page 42.

(ii) All the following results are given in same order.

(iii) Where the scores in the second languages were very weak they were marked but not tabulated.

6. F-. (North End).

A 60 (9), 52 (16); E weak;

father working at harbour; always Afrikaans to mother; sometimes English to father; D.R.Church and Sunday School.

7. M-. (North End).

A 83 (6), 86 (8); E weak;

father on Active Service; mostly Afrikaans to parents and friends; D.R.Church and Sunday School.

8. H-. (North End).

A 66 (9), 62 (36); E 60 (6), 44 (32);

father died in 1944; mother working; used to speak English and Afrikaans to father; always Afrikaans to mother; mostly Afrikaans to brothers and sisters; D.R.Church and Sunday School.

9. K-. (Sydenham).

A 61 (8), 78 (12); E 61 (3), 44 (36);

father working at Frye's Factory; always Afrikaans to family; mostly English to friends and cousin; D.R.Church and Sunday School.

10. T-. (Ethel Valentine).

A 73 (7), 76 (8); E weak;

father on Active Service; mother working; used to speak English in Johannesburg; at time of testing spoke Afrikaans because they were living with Afrikaans-speaking grandmother; D.R.Church and Sunday School.

11. C-. (Ethel Valentine).

A 76 (7), 82 (4); E weak;

father on Active Service; mother working; usually in the house with Afrikaans-speaking grandparents; mostly English to mother; always Afrikaans to father; D.R.Church and Sunday School.

12. P-. (Ethel Valentine).

A 64 (6), 58 (34); E 53 (3), 40 (44);

father on Active Service; always Afrikaans to father; mostly English to mother, brothers, sisters and friends; Old Apostolic Church (Afrikaans and English).

13. V-. (North End).

A 82 (7), 82 (8); E 60 (2), 62 (20);

father fore-man at Firestone Factory; mostly Afrikaans to father; mostly English to mother; always Afrikaans to small brother; D.R.Church and Sunday School.

14. M-. (Kensington).

A 71 (6), 84 (10); E 53 (1), 72 (10);

father died on Active Service; mostly English to smaller brothers and mother; grandmother used to live with them and spoke Afrikaans only; Church of England; D.R.Sunday School.

15. J-. (Kensington).

A 69 (4), 84 (12); E 67 (2), 56 (12);

father working at African Oxygen Co.; always English to father; mostly Afrikaans to mother; used to speak Afrikaans to mother's relatives; English Church and Sunday School.

16. M-. (Sydenham).

A 68 (8), 92 (0); E 57 (2), 64 (16);

Afrikaans to parents; mostly English to sisters and friends; D.R.Church and Sunday School.

11. Cape Town.(a) Ea Pupils in Afrikaans-medium Section.

1. R-. (J.v.Riebeeck).

E 73 (2), 78 (16); A 59 (2), 60 (30);

father Civil Servant; mostly Afrikaans to father; mostly English to mother and brother; D.R.Church and Sunday School.

2. L-. (J.v.Riebeeck).

E 80 (3), 84 (8); A 83 (5), 64 (28);

father a policeman; mostly Afrikaans to father and brother; mostly English to mother and sister; D.R.Church and Sunday School.

3. E-. (J.v.Riebeeck).

E 80 (3), 88 (8); A 85 (3), 72 (20);

father Civil Servant; mostly Afrikaans to father; mostly English to mother and brother; D.R.Church and Sunday School.

4. C-. (J.v.Riebeeck).

E 73 (2), 74 (12); A 59 (4), 48 (44);

father engine-driver; mostly Afrikaans to father; mostly English to mother, brothers and sisters; D.R.Church and Sunday School.

5. M-. (J.v.Riebeeck).

E 82 (2), 70 (12); A 78 (3), 70 (24);

father a detective; Afrikaans to parents; always English to grandmother living in the same house; D.R.Church and Sunday School.

6. I-. (Nassau).

E 89 (1), 96 (0); A 70 (5), 48 (44);

father a Railway worker; mostly English to parents and friends; St Saviour's Church.

7. R-. (Nassau).

E 73 (2), 68 (20); A 56 (1), 48 (22);

father a Railway worker; mostly English to parents; Apostolic Church.

8. A-. (Albert Road).

E 89 (1), 80 (8); A weak;

mother working in butcher shop; mostly English to family and friends; English Church and Sunday School.

9. A-. (Albert Road).

E 72 (2), 62 (16); A weak;

father a builder in Durban; mother on Active Service; mostly English to family and friends; D.R.Church and Sunday School.

10. J-. (Nassau).

E 76 (1), 76 (20); A weak;

father working at ?; always English at home; Afrikaans to aunt; English Church.

11. P-. (S.v.d.Stel).

E 69 (3), 72 (20); A weak;

father working at ?; mostly English to father and sisters; mostly Afrikaans to mother; D.R.Church and Sunday School.

12. J-. (S.v.d.Stel).

E 73 (2), 64 (24); A weak;

father working at Post Office; always English to father; mostly English to mother and sisters; D.R.Church and Sunday School.

(b) Ae Pupils in English-medium Section.

1. J-. (Observatory Boys' Junior).

A 76 (6), 80 (20); E 56 (4), 60 (16);

father a Railway worker; mostly Afrikaans to family; English Church.

2. R-. (Observatory Boys' Junior).

A 63 (7), 72 (20); E 53 (2), 56 (22);

father driving an excavator; always Afrikaans to family; mostly English to friends; D.R.Church and Sunday School.

3. E-. (Observatory Girls' Junior).

A 71(6), 56 (34); E 53 (0), 52 (8);

father working in butcher shop; mother also working in a shop; Afrikaans and English to parents and brothers; (more Afrikaans than English); D.R.Church and Sunday School.

Vague and/or Incorrect Answers.

(a) Some of the answers given by E and Ea pupils in the Grammar Test(i) were vague because the test pupils concerned could not completely grasp the situation depicted. Consequently answers like the following were received:

1V. 10. He puts his hat up in the sky.

11. Burning the pipe/smoking his pipe.

12. Throwing the stone after the rabbit.

Chucking the stone for the rabbit.

He throws a stone; the rabbit is running.

Throwing (chucking) a stone to the rabbit.

14. Looking at the sheep.

Chasing (driving) the sheep.

Calling his lambs.

(i) See English Grammar Test, Table 111, p. 21 and list of Pictures following page 22.

He walked past the sheep.

He is walking around.

He takes them for a walk.

(b) The A and Ae pupils made similar mistakes, (1) e.g.

1V. 10. Hy haal hom hoed af.

11. Hy rook.

Hy sit vuur in.

Hy maak hom aan die brand.

12. Hy gooi die klip, dan val die klip op die hasie.

Hy gooi die klip en die hasie hardloop agter die klip

Hy gooi die klip vir die hasie.

Hy gooi die klip op die hasie.

14. Hy jaag die skape aan.

Hy staan by die skape.

Hy tel die skape.

Hy kyk of die skape weggaan.

(c) Barbarisms.

(a) The following barbarisms occurred in the answers given in the Grammar Test(ii) by some of the E pupils:

111. (a) She is washing her.

(b) He is shaving him.

1V. 1. You dust off.

2. You lock the door open.

3. She is throwing sugar in the tea.

5. She is smearing ointment on the finger.

7. You throw water on your garden.

12. He is throwing the hare with a stone.

16. He is walking in the house.

(b) However, the list of barbarisms that occurred in the answers given by some of the Ea pupils is more imposing, e.g.

(1) See Afrikaans Grammar Test, Table 1V, p.22 and list of Pictures following.

(11) See English Grammar Test, Table 111, page 21.

111. (a) She is washing her.

(b) He is shaving him.

1V. 1. You dust the chairs off; wipe table off; clean stuff off.

2. You lock the door open; you lock the door open and close.

3. Chucking(throwing) sugar in the tea.

4. Making teeth clean.

5. Wiping(smearing) ointment on the cut.

6. Licking him off (to make him clean.)

7. Make(throw) flowers wet; throw water with it; pour flowers wet with it.

8. The cat is springing off the table.

11. Lighting his pipe up; sticking his pipe on fire.

12. He throws the hare (dead) with a stone.

13. Making fast his shoe; making shoe fast.

14. He stays by the sheeps.

16. He is walking in the house.

(c) The A pupils also used some barbarisms in the Grammar Test, (1) e.g.:

1V. 3. Sy sit suiker in die tee.

5. Sy sit self op.

8. Die kat spring af die tafel.

11. Hy light die metjie(pyp).

14. Hy kyk agter die skape.

15. Hy skeur die papier op.

16. My loop in die huis.

- (d) But the Ae pupils provided a longer list of barbarisms, e.g.:

111. (a) Sy was haarself.

(b) Hy skeer homself.

1V. 1. Jy stof die huis.

Jy dust die vullis van die rakke af.

3. Sy sit suiker in die tee.

5. Sy sit self op die vinger.

8. Die kat spring af die tafel.

9. /\$y sit sy baadjie aan.

10. Hy vat(neem)sy hoed af.

Hy trek sy keps af.

Hy lig sy hoed op vir die man.

Hy sit hom hoed af.

Hy tel sy hoed op.

11. Hy sit sy pyp aan die brand.

Hy sit die vuurhoutjie in die pyp en brand dit.

Hy vat sy metjie en light dit.

Hy light hom op.

Hy steek matches in die pyp.

12. Hy gooi die klip na die hasie

14. Hy kyk agter die skape.

15. Hy skeur die papier op.

16. Hy loop in die huis.

After the answers had been marked(1) the results were tabulated(11).

1. See pages 37 and 38.

11. See pages 54 - 77 for PERFORMANCE and
pages 79 - 99 for LANGUAGE CONTAMINATION.

On the following pages, 54 - 77, the tabulated results of the Performance of the pupils tested are given in Tables Xl-Xl11. They are tabulated as follows:-

Performance Scores, Table Xl.....p.	54.
Performance Scores(Percentages), Table X11.....p.	55.
Distribution Tables, Xl11-XXX1V.....pp.	56-67.
Standard Deviation: Formula.....p.	68.
Standard Deviation and Probable Error,	
Tables XXXV - XXXV111.....pp.	69-72.
Probable Error of Diff. between Means:Formula..p.	73.
Application of Probable Error to the results when the Means of certain groups of pupils are compared, Tables XXX1X - XL11.....pp.	74-77.

TABLE XI.
SCORES.

	P.E.Boys	C.T.Boys	Boys	E.E.Girls	C.T.Girls	Girls	P. Elizabeth	Cape Town	Totals
E No. Tested	20	20	40	20	20	40	40	40	80
Vocabulary	1663	1609	3272	1647	1694	3341	3310	3303	6613
Grammar	1746	1746	3492	1748	1710	3458	3494	3456	6950
Total	3409	3365	6764	3395	3404	6799	6804	6759	13563
A No. Tested	20	20	40	20	20	40	40	40	80
Vocabulary	1474	1611	3085	1468	1572	3040	2942	3183	6125
Grammar	1758	1810	3568	1754	1772	3526	3512	3582	7094
Total	3232	3421	6653	3222	3344	6566	6454	6765	13219
First Language First Language									
Ea No. Tested	10	18	28	14	9	23	24	27	51
Vocabulary	765	1379	2144	1041	658	1709	1806	2047	3853
Grammar	718	1386	2104	934	622	1556	1652	2008	3660
Total	1483	2765	4248	1975	1280	3265	3458	4055	7513
As No. Tested	13	12	25	13	8	21	26	20	46
Vocabulary	980	867	1847	916	586	1502	1896	1453	3349
Grammar	1080	974	2054	986	596	1582	2066	1570	3636
Total	2060	1841	3901	1902	1182	3084	3962	3023	6985
EC No. Tested			15			15			30
Vocabulary			1396			1378			2774
Grammar			1428			1456			2884
Total			2824			2834			5658
AC No. Tested			15			15			30
Vocabulary			1404			1377			2781
Grammar			1450			1450			2900
Total			2854			2827			5681

T A B L E XII.
PERFORMANCE SCORES (PERCENTAGES)

	P.E. Boys	C.T. Boys	Boys	P.E. Girls	C.T. Girls	Girls	P. Elizabeth	Cape Town	Totals
E No. Tested	20	20	40	20	20	40	40	40	80
Vocabulary	83.15	80.45	81.8	82.35	84.7	83.53	82.75	82.58	82.66
Grammar	87.3	87.3	87.3	87.4	85.5	86.45	87.35	86.4	86.88
Voc.+Gram.	85.23	83.88	84.55	84.88	85.1	84.99	85.05	84.49	84.77
A. No. Tested	20	20	40	20	20	40	40	40	80
Vocabulary	73.7	80.55	77.13	75.4	78.6	76.0	73.55	79.58	76.56
Grammar	87.9	90.5	89.2	87.7	88.6	88.15	87.8	89.55	88.68
Voc.+Gram.	80.8	85.53	83.16	80.55	83.6	82.08	80.68	84.56	82.62
Ea No. Tested	10	18	28	14	9	23	24	27	51
Vocabulary	76.5	76.61	76.57	74.36	74.22	74.3	75.25	75.81	75.55
Grammar	71.8	77.0	75.14	66.71	69.11	67.65	68.83	74.37	71.76
Voc.+Gram.	74.15	76.81	75.86	70.54	71.67	70.98	72.04	75.1	73.66
Ae No. Tested	13	12	25	13	8	21	26	20	46
Vocabulary	75.38	72.25	73.88	70.46	73.25	71.52	72.92	72.65	72.80
Grammar	83.08	81.17	82.16	75.85	74.5	75.33	79.46	78.5	79.04
Voc.+Gram.	79.23	76.71	78.0	73.16	73.88	73.43	76.19	75.58	75.91
EC No. Tested			15			15			30
Vocabulary			93.07			91.87			92.47
Grammar			96.2			97.07			96.13
Voc.+Gram.			94.14			94.47			94.33
AC No. Tested			15			15			30
Vocabulary			93.6			91.8			92.7
Grammar			96.67			96.67			96.67
Voc.+Gram.			95.13			94.23			94.68

First Language

First Language

TABLE XIII.
DISTRIBUTION TABLE.
TOTAL VOCABULARY.

ALL PUPILS

(Score in First Language + Words Known in
Second Language and not in First Language)

		P.E. Boys	C.T. Boys	Boys	P.E. Girls	C.T. Girls	Girls	Port Elizabeth	Cape Town	Totals
96 - 100	1	1	2					1	1	2
91 - 95	2	1	3	2	4	6	4	5	9	
86 - 90	5	5	10	7	9	16	12	14	26	
81 - 85	7	4	11	6	3	9	13	7	20	
76 - 80	1	4	5	1	1	2	2	5	7	
71 - 75	2	3	5	3	1	4	5	4	9	
66 - 70	2	1	3		2	2	2	3	5	
61 - 65				1		1	1		1	
56 - 60		1	1					1	1	
No. Tested	20	20	40	20	20	40	40	40	80	
Mean	83.3	80.55	81.93	82.4	84.7	83.55	82.85	82.63	82.74	

TABLE XIV.
TOTAL VOCABULARY.

ALL PUPILS

91 - 95		3	3		3	3		6	6
86 - 90	2	5	7	3	4	7	5	9	14
81 - 85	4	7	11	6	3	9	10	10	20
76 - 80	7	2	9	4	6	10	11	8	19
71 - 75	5		5	4	2	6	9	2	11
66 - 70	2	3	5	2	1	3	4	4	8
61 - 65				1	1	2	1	1	2
<u>No. Tested</u>		20	20	40	20	20	40	40	80
<u>Mean</u>		77.9	83.2	80.55	77.8	81.05	79.43	77.85	82.13

TABLE XV.
DISTRIBUTION TABLE.

	<u>VOCABULARY</u>						<u>E PUPILS</u>		
	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
96 - 100	1	1	2				1	1	2
91 - 95	2	1	3	2	4	6	4	5	9
86 - 90	5	5	10	7	9	16	12	14	26
81 - 85	6	4	10	6	3	9	12	7	19
76 - 80	2	4	6	1	1	2	3	5	8
71 - 75	2	3	5	3	1	4	5	4	9
66 - 70	2	1	3	0	2	2	2	3	5
61 - 65				1		1	1		1
56 - 60		1	1					1	1
No. Tested	20	20	40	20	20	40	40	40	80
Mean	83.15	80.45	81.8	82.35	84.7	83.53	82.75	82.58	82.66

TABLE XVI

VOCABULARY

A PUPILS

91 - 95		2	2		1	1		3	3
86 - 90		4	4		4	4		8	8
81 - 85	4	7	11	3	3	6	7	10	17
76 - 80	4	2	6	7	5	12	11	7	18
71 - 75	5	1	6	2	4	6	7	5	12
66 - 70	6	2	8	6	1	7	12	3	15
61 - 65	1	2	3	1	2	3	2	4	6
56 - 60				1		1	1		1
No. Tested	20	20	40	20	20	40	40	40	80
Mean	73.7	80.55	77.13	73.4	78.6	76	73.55	79.58	76.56

TABLE XVII
DISTRIBUTION TABLE

<u>GRAMMAR.</u>							<u>E PUPILS</u>		
	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
96 - 100	5	4	9	4	4	8	9	8	17
91 - 95	4	3	7	6	4	10	10	7	17
86 - 90	4	7	11	3	5	8	7	12	19
81 - 85	1	1	2	2	2	4	3	3	6
76 - 80	3	3	6	2		2	5	3	8
71 - 75	1	1	2	1	2	3	2	3	5
66 - 70	1	1	2	2	3	5	3	4	7
61 - 65	1		1				1		1
No. Tested	20	20	40	20	20	40	40	40	80
Mean	87.3	87.3	87.3	87.4	85.5	86.45	87.35	86.4	86.88

TABLE XVIII

<u>GRAMMAR.</u>							<u>A PUPILS</u>		
	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
96 - 100	5	9	14	5	3	8	10	12	22
91 - 95	4	4	8	2	4	6	6	8	14
86 - 90	3	1	4	6	6	12	9	7	16
81 - 85	3	3	6	2	6	8	5	9	14
76 - 80	4	2	6	4	1	5	8	3	11
71 - 75	1	1	2	1		1	2	1	3
No. Tested	20	20	40	20	20	40	40	40	80
Mean	87.9	90.5	89.2	87.7	88.6	88.15	87.8	89.55	88.68

TABLE XXI
DISTRIBUTION TABLE

TOTAL VOCABULARY

Ea PUPILS

(Score in First Language + Words Known in Second
Language and not in First Language.)

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
91 - 95		1	1		2	2		3	3
86 - 90	1	3	4	3	1	4	4	4	8
81 - 85	3	4	7	1		1	4	4	8
76 - 80	4	3	7	5	3	8	9	6	15
71 - 75	1	5	6	3	2	5	4	7	11
66 - 70	1	2	3		1	1	1	3	4
61 - 65				2		2	2		2
No. Tested	10	18	28	14	9	23	24	27	51
Mean	78.9	79.33	79.18	77.29	80.11	78.39	77.96	79.59	78.82

TABLE XXII.

TOTAL VOCABULARY

Ae PUPILS

91-95	2		2		1	1	2	1	3
86 - 90	4	2	6	1	1	2	5	3	8
81 - 85	2	4	6	6	1	7	8	5	13
76 - 80	3	5	8	5	3	8	8	8	16
71 - 75	1	1	2		2	2	1	3	4
66 - 70	1		1	1		1	2		2
No. Tested	13	12	25	13	8	21	26	20	46
Mean	83	80.51	81.84	80.54	80.13	80.38	81.77	80.4	81.17

TABLE XXIIIDISTRIBUTION TABLEVOCABULARY OF FIRST LANGUAGEEE PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
86 - 90		2	2	2		2	2	2	4
81 - 85	2	4	6	2	2	4	4	6	10
76 - 80	3	4	7	3	2	5	6	6	12
71 - 75	4	4	8	2	3	5	6	7	13
66 - 70	1	3	4	2	1	3	3	4	7
61 - 65		1	1	2	1	3	2	2	4
56 - 60				1		1	1		1
No. Tested	10	18	28	14	9	23	24	27	51
Mean	76.5	76.61	76.57	74.36	74.22	74.3	75.25	75.81	75.55

TABLE XXIV.VOCABULARY OF FIRST LANGUAGEEE PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
91 - 95	1		1				1		1
86 - 90	1		1		1	1	1	1	2
81 - 85	1	2	3	1	1	2	2	3	5
76 - 80	3	2	5	2		2	5	2	7
71 - 75	4	3	7	3	2	5	7	5	12
66 - 70	1	3	4	5	3	8	6	6	12
61 - 65	1	1	2	1	1	2	2	2	4
56 - 60	1	1	2	1		1	2	1	3
No. Tested	13	12	25	13	8	21	26	20	46
Mean	75.38	72.25	73.88	70.46	73.25	71.52	72.92	72.65	72.8

TABLE XXV

DISTRIBUTION TABLE

GRAMMAR OF FIRST LANGUAGE

Ba PUPILS

	P. E. Boys	C. T. Boys	Boys.	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
96 - 100		2	2					2	2
91 - 95									
86 - 90		1	1		1	1		2	2
81 - 85	2	4	6	1		1	3	4	7
76 - 80	1	3	4	1	1	2	2	4	6
71 - 75	2	3	5	4	2	6	6	5	11
66 - 70	3	3	6	2	1	3	5	4	9
61 - 65	1	1	2	3	3	6	4	4	8
56 - 60	1		1	2		2	3		3
51 - 55		1	1		1	1		2	2
46 - 50				1		1	1		1
No. Tested	10	18	28	14	9	23	24	27	51
Mean	71.8	77	75.14	66.71	69.11	67.65	68.83	74.37	71.76

TABLE XXVI

GRAMMAR OF FIRST LANGUAGE

Ae PUPILS

	P. E. Boys	C. T. Boys	Boys.	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
96 - 100	1	1	2		1	1	1	2	3
91 - 95	3		3	2	1	3	5	1	6
86 - 90	1	2	3	1		1	2	2	4
81 - 85	4	1	5	3		3	7	1	8
76 - 80	3	6	9	3	1	4	6	7	13
71 - 75		2	2		3	3		5	5
66 - 70									
61 - 65				1		1	1		1
56 - 60				2	1	3	2	1	3
51 - 55	1		1	1		1	2		2
46 - 50					1	1		1	1
No. Tested	13	12	25	13	8	21	26	20	46
Mean	83.08	81.17	82.16	75.85	74.5	75.33	79.46	78.5	79.04

TABLE XXVII
DISTRIBUTION TABLE
VOCABULARY + GRAMMAR

Ea PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
91 - 95		1	1					1	1
86 - 90		2	2					2	2
81 - 85	2	3	5	1	1	2	3	4	7
76 - 80	2	4	6	2	3	5	4	7	11
71 - 75	4	6	10	5	1	6	9	7	16
66 - 70	1	1	2	3	2	5	4	3	7
61 - 65	1	1	2	1	1	2	2	2	4
56 - 60				1	1	2	1	1	2
51 - 55				1		1	1		1
No. Tested	10	18	28	14	9	23	24	27	51
Mean	74.15	76.81	75.86	70.54	71.67	70.98	72.04	75.1	73.66

TABLE XXVIII
VOCABULARY + GRAMMAR

Ae PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
91 - 95	2		2		1	1	2	1	3
86 - 90	1	1	2	1	1	2	2	2	4
81 - 85	3	2	5				3	2	5
76 - 80	3	4	7	5		5	8	4	12
71 - 75	2	3	5	2	4	6	4	7	11
66 - 70	1	2	3	2		2	3	2	5
61 - 65				3	1	4	3	1	4
56 - 60	1		1		1	1	1	1	2
No. Tested	13	12	25	13	8	21	26	20	46
Mean	79.23	76.71	78	73.16	73.88	73.43	76.19	75.58	75.91

TABLE XXIX
DISTRIBUTION TABLE

	<u>VOCABULARY</u>						<u>EC PUPILS</u>		
	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
98	1	1	2				1	1	2
97				1	1	2	1	1	2
96	1		1		2	2	1	2	3
95	1	3	4				1	3	4
94		1	1		1	1		2	2
93									
92	1	1	2	1	1	2	2	2	4
91	1	1	2				1	1	2
90				3	2	5	3	2	5
89		1	1		1	1		2	2
88		1	1		1	1		2	2
87	1		1	1		1	2		2
No. Tested	6	9	15	6	9	15	12	18	30
Mean	93.1	93	93.07	91	92.4	91.87	92	92.7	92.47

TABLE XXX

	<u>GRAMMAR</u>						<u>EC PUPILS</u>		
100	1	2	3	2	3	5	3	5	8
99									
98									
97									
96	4	4	8	3	6	9	7	10	17
95									
94									
93									
92		3	3	1		1	1	3	4
91									
90									
89									
88									
87									
86									
85									
84	1		1				1		1
No. Tested	6	9	15	6	9	15	12	18	30
Mean	94.6	95.5	95.2	96.6	97.3	97.07	95.6	96.4	96.13

TABLE XXXI
DISTRIBUTION TABLE
VOCABULARY + GRAMMAR

EC PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
99		1	1					1	1
98½				1		1	1		1
98					1	1		1	1
97½	1		1				1		1
97	1	1	2				1	1	2
96½					1	1		1	1
96	1		1		1	1	1	1	2
95½									
95		2	2		3	3		5	5
94½									
94	1		1	1	1	2	2	1	3
93½	1	2	3	1		1	2	2	4
93				2		2	2		2
92½		1	1		1	1		2	2
92		1	1		1	1		2	2
91½									
91				1		1	1		1
90½									
90		1	1					1	1
89½									
89									
88½									
88									
87½									
87									
86½									
86									
85½	1		1				1		1
No. Tested	6	9	15	6	9	15	12	18	30
Mean	94	94.2	94.14	93.8	94.9	94.47	93.9	94.5	94.33

TABLE XXXII
DISTRIBUTION TABLE

VOCABULARYAC PUPILS

	P. E. & Environs Boys	C. T. (Environs) Boys	Boys	P. E. & Environs Girls	C. T. (Environs) Girls	Girls	Port Elizabeth & Environs	Cape Town (Environs)	Totals
98	2	2	4	1		1	3	2	5
97	1	2	3				1	2	3
96									
95	1		1		1	1	1	1	2
94		1	1		2	2		3	3
93		2	2	2	2	4	2	4	6
92					2	2		2	2
91		1	1	1		1	1	1	2
90					1	1		1	1
89									
88		1	1		1	1		2	2
87				1		1	1		1
86									
85	1		1				1		1
84				1		1	1		1
83									
82	1		1				1		1
<hr/>									
No. Tested	6	9	15	6	9	15	12	18	30
<hr/>									
Mean	92.5	94.3	93.6	91	92.3	91.8	91.7	93.3	92.7

TABLE XXXIIIGRAMMARAC PUPILS

	P. E. & Environs Boys	C. T. (Environs) Boys	Boys	P. E. & Environs Girls	C. T. (Environs) Girls	Girls	Port Elizabeth & Environs	Cape Town (Environs)	Totals
100	4		4	4	2	6	8	2	10
99									
98		1	1	1		1	1	1	2
97									
96	2	6	8		4	4	2	10	12
95									
94									
93									
92		2	2	1	3	4	1	5	6
<hr/>									
No. Tested	6	9	15	6	9	15	12	18	30
<hr/>									
Mean	98.6	95.3	96.67	98.3	95.5	96.67	98.5	95.4	96.67

TABLE XXXIV
DISTRIBUTION TABLE
VOCABULARY + GRAMMAR

AC PUPILS

	P. E. & Environs Boys	C. T. (Environs) Boys	Boys	P. E. & Environs Girls	C. T. (Environs) Girls	Girls	Port Elizabeth & Environs	Capo Town (Environs)	Totals.
99	1		1	1		1	2		2
98½									
98		1	1					1	1
97½	1		1				1		1
97	1	1	2				1	1	2
96½	1	2	3	1	1	2	2	3	5
96					1	1		1	1
95½				1	1	2	1	1	2
95					2	2		2	2
94½		2	2					2	2
94					1	1		1	1
93½				1		1	1		1
93		1	1					1	1
92½	1		1		1	1	1	1	2
92		1	1	1		1	1	1	2
91½		1	1	1		1	1	1	2
91	1		1		1	1	1	1	2
90½									
90					1	1		1	1
No. Tested	6	9	15	6	9	15	12	18	30
Mean	95.5	94.8	95.13	94.6	93.9	94.23	95.1	94.4	94.68

The Standard Deviation and the Probable Error of the Means of the Scores of the various groups were worked out and tabulated in Tables XXXV - XXXIX following.

The following formulae were used:-

(a) Standard Deviation or $\sigma = \sqrt{\frac{d^2 - nc^2}{n}}$

Example:-

	Name	x	d	d ²
1.	R -	74	-2	4
2.	B -	79	3	9
3.	G -	79	3	9
4.	B -	85	9	81
5.	N -	74	-2	4
6.	K -	73	-3	9
7.	D -	81	5	25
8.	T -	75	-1	1
9.	G -	68	-8	64
10.	A -	77	1	1
x	=	765		207
\bar{x}	=	76.5		
\bar{x}'	=	76		

x = Child's score.

\bar{x} = Average Score for group.

\bar{x}' = Assumed Mean.

$\bar{x} - \bar{x}' = c$.

d = Diff. between child's score and Assumed Mean.

n = Number tested.

$$\begin{aligned}
 \sigma &= \sqrt{\frac{d^2 - nc^2}{n}} \\
 &= \sqrt{\frac{207 - 10 \times (.5 \times .5)}{10}} \\
 &= \sqrt{\frac{207 - 2.5}{10}} \\
 &= \sqrt{\frac{204.5}{10}} \\
 &= \sqrt{20.45} \\
 &= 4.52
 \end{aligned}$$

(b) Probable Error of a Mean = $\frac{0.6745 \times \sigma}{\sqrt{n}}$

$$\begin{aligned}
 &= \frac{0.6745 \times 4.5}{\sqrt{10}} \\
 &= \frac{3.03525}{3.16} \\
 &= 0.96
 \end{aligned}$$

TABLE XXXV.

STANDARD DEVIATION AND PROBABLE ERROR OF MEANS(1)

TOTAL VOCABULARY.

(Score in First Language and words known in Second Language and not in First Language).

	P.E. Boys	C.T. Boys	Boys	P.E. Girls	C.T. Girls	Girls	Port Elizabeth	Cape Town	Totals
E Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1666	1611	3277	1648	1694	3342	3314	3305	6619
Mean	83.30	80.55	81.93	82.40	84.70	83.55	82.85	82.63	82.74
Standard Dev.	8.19	8.46	8.44	7.08	7.59	7.43	7.67	8.30	7.99
Pr.E. of Mean	1.24	1.26	0.90	1.07	1.15	.793	.819	.886	.603
A Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1558	1664	3222	1556	1621	3177	3114	3285	6399
Mean	77.9	83.2	80.55	77.8	81.05	79.43	77.85	82.13	79.99
Standard Dev.	5.09	7.41	6.87	6.85	7.60	7.43	6.04	7.58	7.18
Pr.E. of Mean	.773	1.12	.733	1.03	1.15	.792	.645	.809	.542
Ea Number Tested	10	18	28	14	9	23	24	27	51
Total Score	769	1428	2217	1082	721	1803	1871	2149	4020
Mean	76.9	79.33	79.18	77.29	80.11	78.39	77.96	79.59	78.82
Standard Dev.	4.83	7.26	6.50	7.96	7.68	7.97	6.88	7.41	7.21
Pr.E. of Mean	1.03	1.15	.827	1.44	1.73	1.12	.947	.961	.681
Ae Number Tested	13	12	25	13	8	21	26	20	46
Total Score	1079	967	2046	1047	641	1688	2126	1608	3734
Mean	83	80.51	81.84	80.54	80.13	80.38	81.77	80.4	81.17
Standard Dev.	6.83	4.40	6.91	4.55	5.92	5.12	5.93	5.06	5.61
Pr.E. of Mean	1.28	.888	.797	.850	1.41	.754	.784	.764	.558

(1) See Formulae and explanatory remarks on page 68.

TABLE XXXVI.

STANDARD DEVIATION AND PROBABLE ERROR OF MEANS(1)

VOCABULARY.

	P.E.Boys	C.T.Boys	Boys	P.E.Girls	C.T.Girls	Girls	P.Elizabeth	Cape Town	Totals
E Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1663	1609	3272	1647	1694	3341	3310	3303	6613
Mean	83.15	80.45	81.8	82.35	84.7	83.53	82.75	82.58	82.66
Standard Dev.	8.19	8.50	8.45	7.04	7.59	7.41	7.64	8.33	8.01
Pr.E. of Mean	1.24	1.28	.902	1.06	1.15	.791	.815	.889	.604
A Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1474	1611	3085	1468	1572	3040	2942	3183	6125
Mean	73.7	80.55	77.13	73.4	78.6	76	73.55	79.58	76.56
Standard Dev.	5.42	8.46	7.89	6.81	8.34	8.05	6.16	8.46	7.99
Pr.E. of Mean	.818	1.28	.842	1.03	1.26	.859	.657	.903	.603
Ea Number Tested	10	18	28	14	9	23	24	27	51
Total Score	765	1379	2144	1041	668	1709	1806	2047	3853
Mean	76.5	76.61	76.57	74.36	74.22	74.3	75.25	75.81	75.55
Standard Dev.	4.52	6.95	6.19	8.69	5.96	7.74	7.33	6.73	7.02
Pr.E. of Mean	.965	1.11	.788	1.57	1.34	1.09	1.01	.873	.663
Ae Number Tested	13	12	25	13	8	21	26	20	46
Total Score	980	867	1847	916	586	1502	1896	1453	3349
Mean	75.38	72.25	73.88	70.46	73.25	71.52	72.92	72.65	72.80
Standard Dev.	9.20	7.28	8.48	5.98	8.12	7.01	8.14	7.64	7.93
Pr.E. of Mean	1.72	1.42	1.14	1.12	1.94	1.03	1.08	1.15	.789
EC Number Tested			15			15			30
Total Score			1396			1378			2774
Mean			93.07			91.87			92.47
Standard Dev.			3.29			3.22			3.31
Pr.E. of Mean			.573			.561			.407
AC Number Tested			15			15			30
Total Score			1404			1377			2781
Mean			93.6			91.8			92.7
Standard Dev.			4.91			3.33			4.29
Pr.E. of Mean			.856			.580			.528

(1) See Formulae and Explanatory Remarks on page 68.

TABLE XXVII.

STANDARD DEVIATION AND PROBABLE ERROR OF MEANS. (1)

GRAMMAR

	P.E.Boys	C.T.Boys	Boys	P.E.Girls	C.T.Girls	Girls	P.Elizabeth	Cape Town	Totals
E Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1746	1746	3492	1748	1710	3458	3494	3456	6950
Mean	87.3	87.3	87.3	87.4	85.5	86.45	87.35	86.4	86.88
Standard Dev.	10.45	7.49	9.09	9.25	9.59	9.46	9.89	8.67	9.29
Pr.E. of Mean	1.58	1.13	.970	1.40	1.45	1.01	1.06	.925	.701
A Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1758	1810	3568	1754	1772	3526	3512	3582	7094
Mean	87.9	90.5	89.2	87.7	88.6	88.15	87.8	89.55	88.68
Standard Dev.	7.63	7.64	7.74	7.54	4.94	6.39	7.62	6.50	7.12
Pr.E. of Mean	1.15	1.15	.826	1.14	.745	.682	.813	.694	.537
Ea Number Tested	10	18	28	14	9	23	24	27	51
Total Score	718	1386	2104	934	622	1556	1652	2008	3660
Mean	71.8	77	75.14	66.71	69.11	67.65	68.83	74.37	71.76
Standard Dev.	7.56	11.12	10.30	8.87	9.62	9.24	8.72	11.27	10.49
Pr.E. of Mean	1.61	1.77	1.31	1.60	2.16	1.30	1.20	1.46	.991
Ae Number Tested	13	12	25	13	8	21	26	20	46
Total Score	1080	974	2054	986	596	1582	2066	1570	3636
Mean	83.08	81.17	82.16	75.85	74.5	75.33	79.46	78.5	79.04
Standard Dev.	11.11	6.66	9.30	13.11	14.76	13.77	12.68	11.15	12.05
Pr.E. of Mean	2.08	1.30	1.25	2.45	3.52	2.03	1.68	1.68	1.20
EC Number Tested			15			15			30
Total Score			1428			1456			2884
Mean			95.2			97.07			96.13
Standard Dev.			3.92			2.29			3.34
Pr.E. of Mean			.683			.40			.411
AC Number Tested			15			15			30
Total Score			1450			1450			2900
Mean			96.67			96.67			96.67
Standard Dev.			2.49			3.24			2.89
Pr.E. of Mean			.434			.565			.356

(1) See Formulae and Explanatory Remarks on page 68.

TABLE XXXVlll.

STANDARD DEVIATION AND PROBABLE ERROR OF MEANS. (1)

VOCABULARY + GRAMMAR (PERCENTAGES).

	P.E. Boys	C.T. Boys	P. Boys	C.P. Girls	C.T. Girls	P. Girls	C.P. Elizabeth	C.T. Town	Totals
E Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1704.5	1677.5	3382	1697.5	1702	3399.5	3402	3379.5	6781.5
Mean	85.23	83.88	84.55	84.88	85.1	84.99	85.05	84.49	84.77
Standard Dev.	8.44	6.73	7.58	7.15	8.19	7.69	7.81	7.52	7.64
Pr.E. of Mean	1.27	1.02	.809	1.08	1.24	.821	.834	.803	.576
A Number Tested	20	20	40	20	20	40	40	40	80
Total Score	1616	1710.5	3326.5	1611	1672	3283	3227	3382.5	6609.5
Mean	80.8	85.53	83.16	80.55	83.6	82.08	80.68	84.56	82.62
Standard Dev.	5.72	7.37	7.00	6.30	6.12	6.40	6.02	6.85	6.72
Pr.E. of Mean	.863	1.11	.747	.951	.923	.683	.642	.731	.507
First Language Ea Number Tested	10	18	28	14	9	23	24	27	51
Total Score	741.5	1382.5	2124	987.5	645	1632.5	1729	2027.5	3756.5
Mean	74.15	76.81	75.86	70.54	71.67	70.98	72.04	75.1	73.66
Standard Dev.	5.24	7.58	6.95	7.57	7.02	7.38	6.93	7.78	7.55
Pr.E. of Mean	1.12	1.21	.884	1.37	1.58	1.04	.954	1.01	.713
First Language Ae Number Tested	13	12	25	13	8	21	26	20	46
Total Score	1030	920.5	1950.5	951	591	1542	1918	1511.5	3492
Mean	79.23	76.71	78	73.16	73.88	73.43	76.19	75.58	75.91
Standard Dev.	9.59	5.42	7.40	7.30	10.93	8.89	9.05	8.21	8.70
Pr.E. of Mean	1.79	1.06	.998	1.36	2.61	1.31	1.20	1.24	.866
EC Number Tested			15			15			30
Total Score			1412			1417			2829
Mean			94.14			94.47			94.33
Standard Dev.			3.25			2.06			2.72
Pr.E. of Mean			.566			.359			.335
AC Number Tested			15			15			30
Total Score			1427			1413.5			2840.5
Mean			95.13			94.23			94.68
Standard Dev.			2.50			2.38			2.48
Pr.E. of Mean			.436			.415			.305

(1) See Formulae and Explanatory Remarks on page 68.

The Means of the Scores of certain groups mentioned in Tables XXXV - XXXVIII, pages 69 - 72, were then compared and the Probable Errors of the Difference between the Means of the particular groups were calculated.(1)

The Probable Errors of Means were taken from Tables XXXV - XXXVIII, pages 69 - 72.

(Difference between Means ÷ Probable Error of Difference between the Means = Critical Ratio.)

If the Critical Ratio is less than 2.0, then the probability, P, that a result of such a magnitude may be due to random error, is greater than 0.177, i.e. to say, it may be expected approximately 18 times out of a 100 on the assumption that the true value is zero. Results of this magnitude cannot be assumed to be significant. On the other hand, if the Critical Ratio exceeds 4.0, P is less than 0.007, i.e., such a result cannot be expected oftener than 7 times out of a 1,000 by mere chance; and for practical purposes this hypothesis may be discarded. Between these two values, 2.0 and 4.0, the hypothesis may be entertained that the results are not due to chance, but practical certainty cannot be had. The nearer the Critical Ratio is to 2.0, the less the probability is that the result is significant, while the nearer to 4.0 the greater it is.

TABLE OF THE PROBABILITY INTEGRAL $(1 - \alpha)$, WITH THE ARGUMENT
EXPRESSED IN TERMS OF THE PROBABLE ERROR.

$\frac{X}{PE}$	$(1 - \alpha)$	$\frac{X}{PE}$	$(1 - \alpha)$	$\frac{X}{PE}$	$(1 - \alpha)$
0.1	.94626	1.7	.25156	3.3	.026031
0.2	.89269	1.8	.22472	3.4	.021834
0.3	.83968	1.9	.20002	3.5	.018241
0.4	.78751	2.0	.17734	3.6	.015176
0.5	.73597	2.1	.15667	3.7	.012577
0.6	.68571	2.2	.13784	3.8	.010376
0.7	.63686	2.3	.12083	3.9	.0085262
0.8	.58947	2.4	.10549	4.0	.0069766
0.9	.54386	2.5	.091765	4.1	.0056934
1.0	.50000	2.6	.079489	4.2	.0046122
1.1	.45815	2.7	.068594	4.3	.0037316
1.2	.41829	2.8	.058948	4.4	.0029978
1.3	.38051	2.9	.050471	4.5	.0024058
1.4	.34503	3.0	.043026	4.6	.0019160
1.5	.31159	3.1	.036539	4.7	.0015244
1.6	.28050	3.2	.030899	4.8	.0012042

On the following pages, 74 - 77, in Tables XXXIX - XLII, we find the Application of the Probable Error to the results when the Means of certain groups are compared.

1. The following Formula for Probable Error of the Difference between Means was used:-

$$\sqrt{(P.E.M._1)^2 + (P.E.M._2)^2}$$

TABLE XXXIX.APPLICATION OF PROBABLE ERROR TO THE RESULTS WHEN THEMEANS(1) OF CERTAIN GROUPS ARE COMPARED.(11)TOTAL VOCABULARY.

(Score in First Language + Words known in Second
Language and not in the First Language).

Group	Mean	Group	Mean	Diff. between Means	P.Error of diff. between Means	Critical Ratio	P = (1 -)
E Boys	81.93	E Girls	83.55	1.62	1.20	1.4	.345
A "	80.55	A "	79.43	1.12	1.08	1.0	.500
E Port E.	82.85	E Cape Town	82.63	0.22	1.21	0.2	.893
A " "	77.85	A " "	82.13	4.28	1.03	4.2	.005
E " "	82.85	A Port E.	77.85	5.0	1.04	4.8	.001
E Cape Town	82.63	A Cape Town	82.13	0.5	1.20	0.4	.788
E Pupils	82.74	A Pupils	79.99	2.75	0.81	3.4	.022
Ea Boys	79.18	Ea Girls	78.39	0.79	1.39	0.6	.686
Ae "	81.84	Ae "	80.38	1.46	1.10	1.3	.381
Ea Port E.	77.96	Ea Cape Town	79.59	1.63	1.35	1.2	.418
Ae " "	81.77	Ae " "	80.40	1.37	1.09	1.3	.381
Ea " "	77.96	Ae Port E.	81.77	3.81	1.23	3.1	.037
Ea Cape Town	79.59	Ae Cape Town	80.40	0.81	1.23	0.7	.637
Ea Pupils	78.82	Ae Pupils	81.17	2.35	0.88	2.7	.069
E Port E.	82.85	Ea Port E.	77.96	4.89	1.25	3.9	.009
E Cape Town	82.63	Ea Cape Town	79.59	3.04	1.31	2.3	.121
E Pupils	82.74	Ea Pupils	78.82	3.92	0.91	4.3	.004
A Port E.	77.85	Ae Port E.	81.77	3.92	1.02	3.8	.010
A Cape Town	82.13	Ae Cape Town	80.40	1.75	1.11	1.6	.281
A Pupils	79.99	Ae Pupils	81.17	1.18	0.78	1.5	.312

i. These Means were taken from Table XXV, page 69.

ii. See Formula and Explanatory Remarks on page 73.

TABLE XL.

APPLICATION OF PROBABLE ERROR TO THE RESULTS WHEN THE
MEANS(1) OF CERTAIN GROUPS ARE COMPARED.(11)

VOCABULARY.

(The Means of Ea and Ae Pupils are of the
First Language only.)

Group	Mean	Group	Mean	Diff. between Means	P.Error of diff. between Means	Critical Ratio	P = (1 -)
E Boys	81.30	E Girls	83.53	1.73	1.20	1.4	.345
A "	77.13	A "	76.0	1.13	1.20	0.9	.544
E Port E.	82.75	E Cape Town	82.58	0.17	1.21	0.1	.946
A " "	73.55	A " "	79.58	6.03	1.12	5.4	.001
E " "	82.75	A Port E.	73.55	9.20	1.05	8.8	.001
E Cape Town	82.58	A Cape Town	79.58	3.00	1.27	2.4	.105
E Pupils	82.66	A Pupils	76.56	6.10	0.853	7.2	.001
Ea Boys	76.57	Ea Girls	74.30	2.27	1.34	1.7	.252
Ae "	73.88	Ae "	71.52	2.36	1.54	1.5	.312
Ea Port E.	75.25	Ea Cape Town	75.81	0.56	1.33	0.4	.788
Ae " "	72.92	Ae " "	72.65	0.27	1.58	0.2	.893
Ea " "	75.25	Ae Port E.	72.92	2.33	1.48	1.6	.280
Ea Cape Town	75.81	Ae Cape Town	72.65	3.16	1.44	2.3	.138
Ea Pupils	75.55	Ae Pupils	72.80	2.75	1.05	2.7	.069
E Port E.	82.75	Ea Port E.	75.25	7.50	1.30	5.8	.001
E Cape Town	82.58	Ea Cape Town	75.81	6.77	1.25	5.4	.001
E Pupils	82.66	Ea Pupils	75.55	7.11	0.897	7.9	.001
A Port E.	73.55	Ae Port E.	72.92	0.63	1.26	0.50	.736
A Cape Town	79.58	Ae Cape Town	72.65	6.93	1.46	4.8	.001
A Pupils	76.56	Ae Pupils	72.80	3.76	0.995	3.8	.010
E "	82.66	EC "	92.47	9.81	0.728	13.5	.001
A "	76.56	AC "	92.80	16.14	0.801	20.5	.001
EC "	92.47	AC "	92.7	0.23	0.667	0.3	.840

i. These Means were taken from Table XXXVI, page 70.

ii. See Formula and Explanatory Remarks on page 73.

TABLE XL1.

APPLICATION OF PROBABLE ERROR TO THE RESULTS WHEN THE
MEANS(1) OF CERTAIN GROUPS ARE COMPARED.(11)

GRAMMAR.

(The Means of Ea and Ae Pupils are of the First Language only.)

Group	Mean	Group	Mean	Diff. between Means	P.Error of diff. between Means	Critical Ratio	P = (1-)
E Boys	87.30	E Girls	86.45	0.85	1.40	0.6	.686
A "	89.20	A "	88.15	1.05	1.07	1.0	.500
E Port E.	87.35	E Cape Town	86.40	0.95	1.41	0.7	.637
A " "	87.8	A " "	89.55	1.75	1.07	1.6	.281
E " "	87.35	A Port E.	87.80	0.45	1.34	0.3	.840
E Cape Town	86.40	A Cape Town	89.55	3.15	1.16	2.7	.069
E Pupils	86.88	A Pupils	88.68	1.80	0.883	2.0	.178
Ea Boys	75.14	Ea Girls	67.65	7.49	1.85	4.1	.006
Ae "	82.16	Ae "	75.33	6.83	2.58	2.9	.050
Ea Port E.	68.83	EaCape Town	74.37	5.54	1.89	2.9	.050
Ae " "	79.46	Ae " "	78.5	0.96	2.38	0.4	.788
Ea " "	68.83	Ae Port E.	79.46	10.63	2.06	5.2	.001
Ea Cape Town	74.37	Ae Cape Town	78.5	4.13	2.23	1.9	.200
Ea Pupils	71.76	Ae Pupils	79.04	7.28	1.56	4.7	.002
E Port E.	87.35	Ea Port E.	68.83	18.52	1.60	11.6	.001
E Cape Town	86.4	Ea Cape Town	74.37	12.03	1.75	6.9	.001
E Pupils	86.98	Ea Pupils	71.76	15.12	1.21	12.5	.001
A Port E.	87.8	Ae Port E.	79.46	8.34	1.87	4.5	.002
A Cape Town	89.55	Ae Cape Town	78.5	11.05	1.82	6.1	.001
A Pupils	88.68	Ae Pupils	79.04	9.64	1.31	7.4	.001
E "	86.98	EC "	96.13	9.25	0.813	11.4	.001
A "	88.68	AC "	96.67	7.99	0.644	12.4	.001
EC "	96.13	AC "	96.67	0.54	0.544	1.0	.500

i. These Means were taken from Table XXXVII, page 71.

ii. See Formula and Explanatory Remarks, page 73.

TABLE XLII.

APPLICATION OF PROBABLE ERROR TO THE RESULTS WHEN THE

MEANS(i) OF CERTAIN GROUPS ARE COMPARED.(ii)

VOCABULARY + GRAMMAR (Percentage).

(The Means of Ea and Ae Pupils are of the First Language only).

Group	Mean	Group	Mean	Diff. between Means	P.Error of diff. between Means	Critical Ratio	P = (1-)
E Boys	84.55	E Girls	84.99	0.44	1.15	0.4	.788
A "	83.16	A "	82.08	1.08	1.01	1.1	.458
E Port E.	85.05	E Cape Town	84.49	0.56	1.16	0.5	.736
A " "	80.68	A " "	84.56	3.88	0.973	4.0	.007
E " "	85.05	A Port E.	80.68	4.37	1.05	4.2	.005
E Cape Town	84.49	A Cape Town	84.56	0.07	1.09	0.1	.946
E Pupils	84.77	A Pupils	82.62	2.15	0.767	2.8	.059
Ea Boys	75.86	Ea Girls	70.98	4.88	1.36	3.6	.015
Ae "	78.0	Ae "	73.43	4.57	1.65	2.8	.059
Ea Port E.	72.04	Ea Cape Town	75.1	3.06	1.39	2.2	.138
Ae " "	76.13	Ae " "	75.58	0.61	1.73	0.4	.788
Ea " "	72.04	Ae Port E.	76.19	4.15	1.53	2.7	.069
Ea Cape Town	75.10	Ae Cape Town	75.58	0.48	1.60	0.3	.840
Ea Pupils	73.63	Ae Pupils	75.91	2.25	1.12	2.0	.178
E Port E.	85.05	Ea Port E.	72.04	13.01	1.27	10.2	.001
E Cape Town	84.43	Ea Cape Town	75.10	9.39	1.29	7.3	.001
E Pupils	84.77	Ea Pupils	73.66	11.11	0.917	12.1	.001
A Port E.	80.63	Ae Port E.	76.19	4.49	1.36	3.3	.026
A Cape Town	84.56	Ae Cape Town	75.58	8.98	1.44	6.2	.001
A Pupils	82.62	Ae Pupils	75.91	6.71	1.00	6.7	.001
E "	84.77	EC "	94.33	9.56	0.666	14.4	.001
A "	82.62	AC "	94.68	12.06	0.592	20.4	.001
EC "	94.33	AC "	94.68	0.35	0.453	0.8	.589

i. These Means were taken from Table XXXVIII, page 72.

ii. See Formula and Explanatory Remarks, page 73.

On the following pages, 79 - 99, the tabulated results of Language Contamination as revealed by pupils are given in Tables XLl11 - LXV11.

They are tabulated as follows:-

Contamination Scores, Table XLl11.....p. 79.

Contamination Scores(Percentages), Table XL1V.....p. 80.

Distribution Tables, XLV - LX1.....pp. 81 -91.

Standard Deviation and Probable Error,

Tables LX11 - LX1V.....pp. 93 -95.

Application of Probable Error to the results

when the Means of certain groups of pupils

are compared, Tables LXV - LXV11.....pp. 97 -99.

Then Follow:-

Words in Order of Difficulty, Table LXV111....pp. 100-105.

Amount of Agreement in Vocabulary of

certain groups of pupils, Table LX1X.....p. 106.

Words known by E and Ea pupils in the Second

Language, but not in their First Language, Table LXX p. 107.

Words known by A and Ae pupils in the Second

Lnaguage, but not in their First Language, Table LXX1 p. 108.

TABLE XLIII.

CONTAMINATION SCORES.

	P.E.Boys	C.T.Boys	Boys	Girls P.E.	C.T.Girls	Girls	P.Elizabeth	Cape Town	Totals
E No. Tested	28	20	40	20	20	40	40	40	80
Vocabulary	25	16	41	30	10	40	55	26	81
Grammar	116	114	230	110	148	258	226	262	488
Total	141	130	271	140	158	298	281	288	569
A No. Tested	20	20	40	20	20	40	40	40	80
Vocabulary	113	70	183	118	62	180	231	132	363
Grammar	94	122	216	126	114	240	220	236	456
Total	207	192	399	244	176	420	451	368	819
First Language Ea No. Tested	10	18	28	14	9	23	24	27	51
Vocabulary	25	27	52	28	17	45	53	44	97
Grammar	182	240	422	260	178	438	442	418	860
Total	207	267	474	288	195	483	495	462	957
First Language Ae No. Tested	13	12	25	13	8	21	26	20	46
Vocabulary	92	66	158	99	37	136	191	103	294
Grammar	116	172	288	198	128	326	314	300	614
Total	208	238	446	297	165	462	505	403	908
EC No. Tested			15			15			30
Vocabulary			1			5			6
Grammar			20			12			32
Total			21			17			38
AC No. Tested			15			15			30
Vocabulary			5			10			15
Grammar			38			29			67
Total			43			39			82

TABLE XLIV.

CONTAMINATION SCORES (PERCENTAGE)

	P.E.Boys	C.T.Boys	Boys	P.E.Girls	C.T.Girls	Girls	P.Elizabeth	Cape Town	Totals
E No. Tested	20	20	40	20	20	40	40	40	80
Vocabulary	1.25	0.8	1.03	1.5	0.5	1.0	1.38	0.65	1.01
Grammar	5.8	5.7	5.75	5.5	7.4	6.45	5.65	6.55	6.1
Voc.+Gram.	3.33	3.25	3.39	3.25	2.95	3.6	3.39	3.6	3.49
A No. Tested	20	20	40	20	20	40	40	40	80
Vocabulary	5.65	3.5	4.58	5.9	3.1	4.5	5.78	3.3	4.54
Grammar	4.7	6.1	5.4	6.3	5.7	6.0	5.5	5.9	5.7
Voc.+Gram.	5.18	4.8	4.99	6.1	4.4	5.25	5.64	4.6	5.12
First Language Ea No. Tested	10	18	28	14	9	23	24	27	51
Vocabulary	2.5	1.5	1.86	2.0	1.89	1.96	2.21	1.63	1.9
Grammar	18.2	13.33	15.07	18.57	19.78	19.04	18.42	15.48	16.86
Voc.+Gram.	10.35	7.42	8.46	10.29	10.83	10.5	10.31	8.56	9.38
First Language Ae No. Tested	13	12	25	13	8	21	26	20	46
Vocabulary	7.07	5.5	6.32	7.62	4.63	6.47	7.35	5.15	6.39
Grammar	8.92	14.33	11.52	15.23	16.00	15.52	12.08	15.00	13.35
Voc.+Gram.	8.0	10.33	9.12	11.42	10.31	11.00	9.71	10.33	9.98
EC No. Tested			15			15			30
Vocabulary			0.07			0.33			0.2
Grammar			1.33			0.8			1.07
Voc.+Gram.			0.7			0.57			0.67
AC No. Tested			15			15			30
Vocabulary			0.33			0.67			0.5
Grammar			2.53			1.93			2.23
Voc.+Gram.			1.43			1.3			1.37

TABLE XLV
DISTRIBUTION TABLE
CONTAMINATION IN VOCABULARY

E PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
3	1	1	2	2		2	3	1	4
2	8	1	9	7		7	15	1	16
1	6	11	17	10	10	20	16	21	37
0	5	7	12	1	10	11	6	17	23
No. Tested	20	20	40	20	20	40	40	40	80
Mean	1.25	0.8	1.03	1.5	0.5	1.0	1.38	0.65	1.07

TABLE XLVI
CONTAMINATION IN GRAMMAR

E PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
24	1		1				1		1
23									
22									
21									
20	1		1	1		1	2		2
19									
18									
17									
16	1	1	2	2	3	5	3	4	7
15		1	1					1	1
14									
13									
12	2	1	3	1	3	4	3	4	7
11				1		1	1		1
10									
9									
8	3	3	6	2	4	6	5	7	12
7									
6									
5									
4	2	12	14	5	8	13	7	20	27
3									
2									
1									
0	10	2	12	8	2	10	18	4	22
No. Tested	20	20	40	20	20	40	40	40	80
Mean	5.8	5.7	5.75	5.5	7.4	6.45	5.65	6.55	6.1

TABLE XLVII

DISTRIBUTION TABLE

CONTAMINATION IN VOCABULARY + GRAMMAR

S. U. ILL.

	Boys	C. T. Boys	Boys	C. T. Girls	C. T. Girls	Girls	Port Elizabeth	Capo Town	Totals
13.5	1		1				1		1
13									
12.5									
11.5									
11	1		1	1		1	2		2
10.5									
10									
9.5		1	1					1	1
9	1		1				1		1
8.5				2	1	3	2	1	5
8					2	2		2	2
7.5		1	1					1	1
7	2		2	1		1	3		3
6.5		1	1	1	3	4	1	4	5
6									
5.5									
5	2	1	3	2		2	4	1	5
4.5	1	1	2		2	2	1	3	4
4		1	1		2	2		3	3
3.5				1		1	1		1
3	1		1	2		2	3		3
2.5	1	7	8	2	2	4	3	9	12
2		5	5		6	6		11	11
1.5									
1	1		1	1		1	2		2
0.5	4	1	5	6	2	8	10	3	15
0	5	1	6	1		1	6	1	7
No. Tested	20	20	40	20	20	40	40	40	80
Mean	3.53	3.25	3.39	3.25	3.25	3.6	3.39	3.6	3.49

TABLE XLVIII.

DISTRIBUTION TABLECONTAMINATION IN VOCABULARYA PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
10	1		1				1		1
9	1		1	2		2	3		3
8	2	2	4	4		4	6	2	8
7		1	1	1		1	1	1	2
6	4	1	5	4	1	5	8	2	10
5	9	2	11	3	3	6	12	5	17
4	1	2	3	4	4	8	5	6	11
3	1	5	6	2	4	6	3	9	12
2	1	2	3		6	6	1	8	9
1		4	4		1	1		5	5
0		1	1		1	1		2	2
No. Tested	20	20	40	20	20	40	40	40	80
Mean	5.65	3.5	4.58	5.9	3.1	4.5	5.78	3.3	4.54

TABLE XLIX

CONTAMINATION IN GRAMMARA PUPILS

20				1		1	1		1
19									
18									
17									
16	1	2	3				1	2	3
15									
14									
13									
12	2	2	4	3	2	5	5	4	9
11									
10									
9									
8	2	4	6	4	8	12	6	12	18
7									
6	1	1	2	1	1	2	2	2	4
5									
4	8	7	15	8	5	13	16	12	28
3									
2									
1									
0	6	4	10	3	4	7	9	8	17
No. Tested	20	20	40	20	20	40	40	40	80
Mean	4.7	6.1	5.4	6.3	5.7	6.0	5.5	5.9	5.7

TABLE L

DISTRIBUTION TABLE

CONTAMINATION IN VOCABULARY + GRAMMAR.

A PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
12.5				1		1	1		1
12									
11.5									
11									
10.5		1	1					1	1
10	1	1	2	2		2	3	1	4
9.5	1		1				1		1
9	1		1				1		1
8.5		1	1	1	1	2	1	2	3
8	1	1	2	1	1	2	2	2	4
7.5		1	1	1		1	1	1	2
7	1	1	2	1		1	2	1	3
6.5	1	1	2	1	1	2	2	2	4
6				3	1	4	3	1	4
5.5	1	1	2		2	2	1	3	4
5	1		1	2	4	6	3	4	7
4.5	5		5	2	2	4	7	2	9
4	1	2	3	2		2	3	2	5
3.5		2	2	1	1	2	1	3	4
3	3	1	4		2	2	3	3	6
2.5	3	3	6		1	1	3	4	7
2		2	2	1	3	4	1	5	6
1.5		2	2	1		1	1	2	3
1					1	1		1	1
0.5									
0									
No. Tested	20	20	40	20	20	40	40	40	80
Mean	5.18	4.8	4.99	6.1	4.4	5.25	5.64	4.6	5.12

TABLE LI

DISTRIBUTION TABLE

Ea PUPILS

CONTAMINATION IN VOCABULARY OF FIRST LANGUAGE.

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
4				2		2	2		2
3	6	3	9	1	2	3	7	5	12
2	3	5	8	6	4	10	9	9	18
1	1	8	9	5	3	8	6	11	17
0		2	2					2	2
No. Tested	10	18	28	14	9	23	24	27	51
Mean	2.5	1.5	1.86	2.0	1.89	1.96	2.21	1.63	1.9

TABLE LII

CONTAMINATION IN GRAMMAR OF FIRST LANGUAGE.

Ea PUPILS

32					1	1		1	1
31									
30									
29									
28	1	1	2	2	1	3	3	2	5
27									
26	1		1		1	1	1	1	2
25									
24	1	2	3	3	1	4	4	3	7
23									
22				1		1	1		1
21									
20	3	2	5	1	1	2	4	3	7
19									
18		1	1	1		1	1	1	2
17									
16	1	2	3	2	1	3	3	3	6
15									
14									
13									
12	1	2	3	2	2	4	3	4	7
11									
10		1	1					1	1
9									
8	2	4	6	2	1	3	4	5	9
7									
6									
5									
4		2	2					2	2
3									
2									
1									
0		1	1					1	1
No. Tested	10	18	28	14	9	23	24	27	51
Mean	18.2	13.33	15.07	18.57	19.78	19.04	18.42	15.48	16.86

TABLE LIII

DISTRIBUTION TABLE

CONTAMINATION IN VOCABULARY OF FIRST LANGUAGE.

Ae PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
15		1	1					1	1
14									
13					1	1		1	1
12						1		1	1
11	1		1	1		1	2		2
10		2	2	1		1	1	2	3
9	1		1	2		2	3		3
8	4		4	2		2	6		6
7	3	2	5	4		4	7	2	9
6	2	1	3	2	2	4	4	3	7
5	1	1	2				1	1	2
4		3	3	1	1	2	1	4	5
3		1	1		1	1		2	2
2	1		1		3	3	1	3	4
1		1	1					1	1
0									
No. Tested	13	12	25	13	8	21	26	20	46
Mean	7.07	5.5	6.32	7.62	4.63	6.47	7.35	5.15	6.39

TABLE LIV

CONTAMINATION IN GRAMMAR OF FIRST LANGUAGE.

Ae PUPILS

36				1		1	1		1
35									
34				2	1	3	2	1	3
33									
32									
31									
30									
29									
28									
27									
26									
25									
24		1	1	1	1	2	1	2	3
23									
22									
21									
20	1	4	5		1	1	1	5	6
19									
18									
17									
16	2	1	3		1	1	2	2	4
c/f	3	6	9	4	4	8	7	10	17

TABLE LIV. (CONTINUED).
CONTAMINATION IN GRAMMAR OF FIRST LANGUAGE At PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
b/f	3	6	9	4	4	8	7	10	17
15					1	1		1	1
14					1	4	4	5	9
13	1	4	5	3	1	1	3		3
12	2		2	1		2	5		5
11	3		3	2		4	4	3	7
10									
9									
8									
7									
6									
5									
4	2	1	3	2	2	4	4	3	7
3									
2									
1									
0	2	1	3	1		1	3	1	4
No. Tested	13	12	25	13	8	21	26	20	46
Mean	8.92	14.33	11.52	15.23	16	15.52	12.08	15	13.35

TABLE LV.

DISTRIBUTION TABLE

CONTAMINATION IN VOCABULARY + GRAMMAR
OF FIRST LANGUAGE.

Ea PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
16.5					1	1		1	1
16				2		2	2		2
15.5									
15	1	1	2				1	1	2
14.5	1		1		2	2	1	2	3
14									
13.5	1	1	2	1		1	2	1	3
13				2	1	3	2	1	3
12.5		1	1					1	1
12									
11.5	1	1	2	1		1	2	1	3
11	1	1	2				1	1	2
10.5	1		1	1	1	2	2	1	3
10				1		1	1		1
9.5	1	1	2				1	1	2
9		1	1	2	1	3	2	2	4
8.5		1	1					1	1
8									
7.5									
7	1		1	1	2	3	2	2	4
6.5				1		1	1		1
6		3	3					3	3
5.5	2	1	3		1	1	2	2	4
5		1	1					1	1
4.5		2	2	2		2	2	2	4
4									
3.5									
3									
2.5		2	2					2	2
2									
1.5									
1									
0.5		1	1					1	1
0									
No. Tested	10	18	28	14	9	23	24	27	51
Mean	10.35	7.42	8.46	10.29	10.83	10.5	10.31	8.56	9.38

TABLE LVI
DISTRIBUTION TABLE
CONTAMINATION IN VOCABULARY + GRAMMAR
OF FIRST LANGUAGE.

Ae PUPILS

	P. E. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
22.5				1		1	1		1
22									
21.5									
21									
20.5				1		1	1		1
20				1	1	2	1	1	2
19.5									
19									
18.5									
18					1	1		1	1
17.5									
17									
16.5									
16									
15.5	1		1	1		1	2		2
15									
14.5		1	1					1	1
14									
13.5		2	2					2	2
13		1	1		1	1		2	2
12.5	1		1				1		1
12	1	1	2			1	1	1	2
11.5		1	1	1		1	1	1	2
11		2	2					2	2
10.5									
10	1	1	2	1	1	2	2	2	4
9.5		1	1	1		1	1	1	2
9	1		1	1		1	2		2
8.5					1	1		1	1
8	1		1	1		1	2		2
7.5	2		2	1		1	3		3
7	1		1		1	1	1	1	2
6.5									
6	1		1				1		1
5.5				1		1	1		1
5				1		1	1		1
4.5									
4				1		1	1		1
3.5	1		1				1		1
3	1		1		2	2	1	2	3
2.5	1	1	2				1	1	2
2		1	1					1	1
1.5									
1									
0.5									
0									
No. Tested	13	12	25	13	8	21	26	20	46
Mean	8	10.33	9.12	11.42	10.37	11	9.77	10.33	9.98

TABLE LVII.

DISTRIBUTION TABLE

CONTAMINATION IN VOCABULARY

EC PUPILS

	P. L. Boys	C. T. Boys	Boys	P. E. Girls	C. T. Girls	Girls	Port Elizabeth	Cape Town	Totals
1	1		1	5		5	6		6
0	5	9	14	1	9	10	6	18	24
No. Tested	6	9	15	6	9	15	12	18	30
Mean	0.16	0	0.07	0.83	0	0.33	0.5	0	0.2

CONTAMINATION IN GRAMMAR

4	3	2	5	1	2	3	4	4	8
3									
2									
1									
0	3	7	10	5	7	12	8	14	22
No. Tested	6	9	15	6	9	15	12	18	30
Mean	2	0.88	1.33	0.66	0.88	0.8	1.33	0.88	1.07

TABLE LVIII

CONTAMINATION IN VOCABULARY + GRAMMAR.

2.5	1		1	1		1	2		2
2	2	2	4		2	2	2	4	6
1.5									
1									
0.5				4		4	4		4
0	3	7	10	1	7	8	4	14	18
No. Tested	6	9	15	6	9	15	12	18	30
Mean	1.08	0.44	0.7	0.75	0.44	0.53	0.91	0.44	0.67

DISTRIBUTION TABLE

CONTAMINATION IN VOCABULARY.

AC PUPILS

	P.E. & Environs Boys.	C.T. (Environs) Boys.	Boys.	P.E. & Environs Girls.	C.T. (Environs) Girls.	Girls.	P.E. & Environs	C.T. (Environs).	Totals.
4				1		1	1		1
3									
2	2		2	1	1	2	3	1	4
1	1		1	2		2	3		3
0	3	9	12	2	8	10	5	17	22
No. Tested	6	9	15	6	9	15	12	18	30
Mean	0.83	0	0.33	1.33	0.22	0.67	1.08	0.05	0.5

TABLE LX.

CONTAMINATION IN GRAMMAR.

8					2	2		2	2
7									
6									
5									
4	1	8	9	1	2	3	2	10	12
3		1	1						
2								1	1
1					1	1		1	1
0	5		5	5	4	9	10	4	14
No. Tested	6	9	15	6	9	15	12	18	30
Mean	0.66	3.77	2.53	0.66	1	1.93	0.66	2.38	2.23

TABLE LXI

CONTAMINATION IN VOCABULARY + GRAMMAR.

4					2	2		2	2
3.5									
3					1	1		1	1
2.5				1		1	1		1
2	1	8	9	1	1	2	2	9	11
1.5									
1	2	1	3	1		1	3	1	4
0.5	1		1	1	1	2	2	1	3
0	2		2	2	4	6	4	4	8
No. Tested	6	9	15	6	9	15	12	18	30
Mean	0.75	1.88	1.43	1	1.5	1.3	0.87	1.69	1.37

The Standard Deviation and the Probable Error of the Means of the Contamination Scores of the various groups were worked out and tabulated in Tables LXII - LXIV, following.

The following Formulae were used:-(i)

$$(a) \text{ Standard Deviation or } \sigma = \sqrt{\frac{\sum d^2 - nc^2}{n}}$$

Example:--

	Name	x	d	d ²
1.	R -	28	10	100
2.	B -	20	2	4
3.	G -	16	-2	4
4.	B -	20	2	4
5.	N -	8	-10	100
6.	K -	20	2	4
7.	D -	8	-10	100
8.	T -	24	6	36
9.	G -	26	8	64
10.	A -	12	-6	36
x	=	182		452
\bar{x}	=	18.2		
\bar{x}'	=	18		

x = Child's score.

\bar{x} = Average Score for group.

\bar{x}' = Assumed Mean.

$\bar{x} - \bar{x}' = c$

d = Diff. between child's score and Assumed Mean.

n = Number tested.

$$\begin{aligned}
 \sigma &= \sqrt{\frac{\sum d^2 - nc^2}{n}} \\
 &= \sqrt{\frac{452 - 10 \times (.2 \times .2)}{10}} \\
 &= \sqrt{\frac{452 - 0.4}{10}} \\
 &= \sqrt{45.16} \\
 &= 6.72
 \end{aligned}$$

$$\begin{aligned}
 (b) \text{ Probable Error of a Mean} &= \frac{0.6745 \times \sigma}{\sqrt{n}} \\
 &= \frac{0.6745 \times 6.72}{\sqrt{10}} \\
 &= \frac{4.53264}{3.16} \\
 &= 1.43
 \end{aligned}$$

(i) The same Formulae were used in the case of PERFORMANCE Scores. See page 68.

TABLE LXII.

STANDARD DEVIATION AND PROBABLE ERROR OF MEANS.(i)

CONTAMINATION IN VOCABULARY.(ii)

	P.E. Boys	C.T. Boys	Boys	P.E. Girls	C.T. Girls	Girls	P. Elizabeth	Cape Town	Totals
E Number Tested	20	20	40	20	20	40	40	40	80
Total Score	25	16	41	30	10	40	55	26	81
Mean	1.25	0.8	1.03	1.5	0.5	1	1.38	0.65	1.01
Standard Dev.	.887	.748	.851	.742	.50	.806	.827	.654	.829
Pr.E. of Mean	.134	.113	.091	.112	.075	.086	.088	.07	.063
A Number Tested	20	20	40	20	20	40	40	40	80
Total Score	113	70	183	118	62	180	231	132	363
Mean	5.65	3.5	4.58	5.9	3.1	4.5	5.78	3.3	4.54
Standard Dev.	1.85	2.31	2.30	1.89	1.48	2.20	1.88	1.97	2.28
Pr.E. of Mean	.279	.349	.245	.285	.223	.235	.201	.210	.172
Ea Number Tested	10	18	28	14	9	23	24	27	51
Total Score	25	27	52	28	17	45	53	44	97
Mean	2.5	1.5	1.86	2	1.89	1.96	2.21	1.63	1.9
Standard Dev.	.671	.898	.953	1.0	.736	.908	.912	.888	.934
Pr.E. of Mean	.143	.143	.121	.18	.165	.128	.126	.115	.088
Ae Number Tested	13	12	25	13	8	21	26	20	46
Total Score	92	66	158	99	37	136	191	103	294
Mean	7.07	5.5	6.32	7.62	4.63	6.47	7.35	5.15	6.39
Standard Dev.	2.06	2.57	2.44	1.78	3.20	2.82	1.94	2.87	2.63
Pr.E. of Mean	.385	.501	.329	.333	.763	.415	.257	.433	.262
EC Number Tested			15			15			30
Total Score			1			5			6
Mean			0.07			0.33			0.2
Standard Dev.			.262			.467			.40
Pr.E. of Mean			.046			.081			.049
AC Number Tested			15			15			30
Total Score			5			10			15
Mean			0.33			0.67			0.5
Standard Dev.			.696			1.14			.957
Pr.E. of Mean			.121			.199			.118

(i) See Formulae and Explanatory Remarks on page 92.

(ii) For PERFORMANCE in Vocabulary by the same groups, see page 70

TABLE LXIII.

STANDARD DEVIATION AND PROBABLE ERROR OF MEANS. (1)

CONTAMINATION IN GRAMMAR. (11)

	P.E. Boys	C.T. Boys	Boys	P.E. Girls	C.T. Girls	Girls	P. Elizabeth	Cape Town	Totals
E Number Tested	20	20	40	20	20	40	40	40	80
Total Score	116	114	230	110	148	258	226	262	488
Mean	5.8	5.7	5.75	5.5	7.4	6.45	5.65	6.55	6.1
Standard Dev.	7.32	4.06	5.92	6.16	4.94	5.67	6.77	4.60	5.80
Pr.E. of Mean	1.10	.613	.632	.930	.745	.605	.723	.491	.438
A Number Tested	20	20	40	20	20	40	40	40	80
Total Score	94	122	216	126	114	240	220	236	456
Mean	4.7	6.1	5.4	6.3	5.7	6	5.5	5.9	5.7
Standard Dev.	4.44	4.79	4.67	4.79	3.65	4.27	4.69	4.26	4.48
Pr.E. of Mean	.670	.723	.498	.723	.551	.456	.501	.455	.338
First Language	Ea Number Tested	10	18	28	14	9	23	24	51
	Total Score	182	240	422	260	178	438	442	860
	Mean	18.2	13.33	15.07	18.57	19.78	19.04	18.42	16.86
	Standard Dev.	6.72	7.63	7.68	6.56	7.80	7.09	6.63	7.68
	Pr.E. of Mean	1.43	1.21	.977	1.18	1.75	.996	.913	.726
First Language	Ae Number Tested	13	12	25	13	8	21	26	46
	Total Score	116	172	288	198	128	326	314	614
	Mean	8.92	14.33	11.52	15.23	16	15.52	12.08	13.35
	Standard Dev.	5.85	6.82	6.89	11.96	9.43	11.07	9.93	9.26
	Pr.E. of Mean	1.09	1.33	.929	2.23	2.25	1.63	1.31	.921
EC	Number Tested		15			15			30
	Total Score		20			12			32
	Mean		1.33			0.8			1.07
	Standard Dev.		1.89			1.60			1.77
	Pr.E. of Mean		.329			.279			.218
AC	Number Tested		15			15			30
	Total Score		38			29			67
	Mean		2.53			1.93			2.23
	Standard Dev.		1.86			2.84			2.42
	Pr.E. of Mean		.324			.495			.298

(i) See Formulae and Explanatory Remarks on page 92.

(ii) For PERFORMANCE in Grammar by the same groups, see page 71.

TABLE LXIV.

STANDARD DEVIATION AND PROBABLE ERROR OF MEANS.(1)

CONTAMINATION IN VOCABULARY + GRAMMAR(PERCENTAGES).(11)

	P.E. Boys	C.T. Boys	Boys	P.E. Girls	C.T. Girls	Girls	P. Elizabeth	Cape Town	Totals
E Number Tested	20	20	40	20	20	40	40	40	80
Total Score	70.5	65	135.5	65	79	144	135.5	144	279.5
Mean	3.53	3.25	3.39	3.25	3.95	3.6	3.39	3.6	3.49
Standard Dev.	4.01	2.27	3.26	3.17	2.49	2.87	3.62	2.41	3.06
Pr.E. of Mean	.605	.343	.348	.478	.376	.306	.386	.257	.231
A Number Tested	20	20	40	20	20	40	40	40	80
Total Score	103.5	96	199.5	122	88	210	225.5	184	409.5
Mean	5.18	4.8	4.99	6.1	4.4	5.25	5.64	4.6	5.12
Standard Dev.	2.34	2.82	2.59	2.68	1.97	2.51	2.53	2.45	2.55
Pr.E. of Mean	.353	.426	.276	.404	.297	.268	.270	.261	.192
First Language Ea Number Tested	10	18	28	14	9	23	24	27	51
Total Score	103.5	133.5	237	144	97.5	241.5	247.5	231	478.5
Mean	10.35	7.42	8.46	10.29	10.83	10.5	10.31	8.56	9.38
Standard Dev.	3.30	3.99	4.02	3.66	3.73	3.69	3.52	4.22	4.0
Pr.E. of Mean	.704	.635	.512	.660	.839	.519	.495	.547	.378
First Language Ae Number Tested	13	12	25	13	8	21	26	20	46
Total Score	104	124	228	148.5	82.5	231	252.5	206.5	459
Mean	8	10.33	9.12	11.42	10.31	11	9.71	10.33	9.98
Standard Dev.	3.71	3.88	3.97	5.98	5.93	5.92	5.26	4.81	5.03
Pr.E. of Mean	.693	.756	.536	1.12	1.41	.872	.696	.726	.535
EC Number Tested			15			15			30
Total Score			10.5			8.5			19
Mean			0.7			0.57			0.67
Standard Dev.			1.0			.836			.935
Pr.E. of Mean			.174			.146			.115
AC Number Tested			15			15			30
Total Score			21.5			19.5			41
Mean			1.43			1.3			1.37
Standard Dev.			.752			1.45			1.15
Pr.E. of Mean			.131			.253			.142

(i)—See Formulae and Explanatory Remarks on page 92.

(ii) For PERFORMANCE in Vocabulary + Grammar by same groups, see page 72.

The Means of the Contamination Scores of certain groups mentioned in Tables LXII - LXIV, pages 93 - 95, were then compared and the Probable Errors of the Difference between the Means of the particular groups were calculated.(1)

The Probable Errors of Means were taken from Tables LXII - LXIV, pages 93 - 95.

(Difference between Means \div Probable Error of Difference between the Means, = Critical Ratio.)

If the Critical Ratio is less than 2.0, then the probability, P, that a result of such a magnitude may be due to random error, is greater than 0.177, i.e. to say, it may be expected approximately 18 times out of a 100 on the assumption that the true value is zero. Results of this magnitude cannot be assumed to be significant. On the other hand, if the Critical Ratio exceeds 4.0, P is less than 0.007, i.e., such a result cannot be expected oftener than 7 times out of a 1, 000 by mere chance; and for practical purposes this hypothesis may be discarded. Between these two values, 2.0 and 4.0, the hypothesis may be entertained that the results are not due to chance, but practical certainty cannot be had. The nearer the Critical Ratio is to 2.0, the less the probability is that the result is significant, while the nearer to 4.0 the greater it is.

TABLE OF THE PROBABILITY INTEGRAL ($-\alpha$), WITH THE ARGUMENT
EXPRESSED IN TERMS OF THE PROBABLE ERROR.

$\frac{X}{PE}$	(1 - α)	$\frac{X}{PE}$	(1 - α)	$\frac{X}{PE}$	(1 - α)
0.1	.94626	1.7	.25156	3.3	.026031
0.2	.89269	1.8	.22472	3.4	.021834
0.3	.83968	1.9	.20002	3.5	.018241
0.4	.76751	2.0	.17734	3.6	.015176
0.5	.73597	2.1	.15667	3.7	.012577
0.6	.68571	2.2	.13784	3.8	.010376
0.7	.63686	2.3	.12083	3.9	.0085262
0.8	.58947	2.4	.10549	4.0	.0069766
0.9	.54386	2.5	.091765	4.1	.0056934
1.0	.50000	2.6	.079489	4.2	.0046122
1.1	.45815	2.7	.068594	4.3	.0037316
1.2	.41829	2.8	.058948	4.4	.0029978
1.3	.38061	2.9	.050471	4.5	.0024058
1.4	.34503	3.0	.043026	4.6	.0019160
1.5	.31169	3.1	.036539	4.7	.0015244
1.6	.28050	3.2	.030899	4.8	.0012042

On the following pages, 97 - 99, in Tables LXV - LXVII, we find the Application of the Probable Error to the results when the Means of certain groups are compared.

1. The following Formula for Probable Error of the Difference between Means was used:-

$$\sqrt{(P.E.M._1)^2 + (P.E.M._2)^2}$$

(The same Formula was used in the case of PERFORMANCE Scores, see page 73, and is repeated here for convenience sake).

TABLE LXV.

APPLICATION OF PROBABLE ERROR TO THE RESULTS WHEN THE
 MEANS(1) OF CERTAIN GROUPS ARE COMPARED.(11)

CONTAMINATION IN VOCABULARY.(111)

(The Means of Ea and Ae Pupils are of the First Language only).

Group	Mean	Group	Mean	Diff. between Means	P.Error of diff. between Means	Critical Ratio	P = (1-)
E Boys	1.03	E Girls	1.0	0.03	.125	0.2	.893
A "	4.58	A "	4.5	0.08	.340	0.2	.893
E Port E.	1.38	E Cape Town	0.65	0.73	.112	6.5	.001
A " "	5.78	A " "	3.3	2.48	.291	8.5	.001
E " "	1.38	A Port E.	5.78	4.4	.219	20.1	.001
E Cape Town	0.65	A Cape Town	3.3	2.65	.221	12.0	.001
E Pupils	1.01	A Pupils	4.54	3.53	.183	19.3	.001
Ea Boys	1.86	Ea Girls	1.96	0.1	.176	0.6	.686
Ae " "	6.32	Ae " "	6.47	0.15	.530	0.3	.840
Ea Port E.	2.21	Ea Cape Town	1.63	0.58	.171	3.4	.022
Ae " "	7.35	Ae " "	5.15	2.2	.503	4.4	.003
Ea " "	2.21	Ae Port E.	7.35	5.14	.286	18.0	.001
Ea Cape Town	1.63	Ae Cape Town	5.15	3.52	.448	7.9	.001
Ea Pupils	1.9	Ae Pupils	6.39	4.49	.276	16.3	.001
E Port E.	1.38	Ea Port E.	2.21	0.83	.154	5.4	.001
E Cape Town	0.65	Ea Cape Town	1.63	0.98	.135	7.3	.001
E Pupils	1.01	Ea Pupils	1.9	0.89	.108	8.2	.001
A Port E.	5.78	Ae Port E.	7.35	1.57	.326	4.8	.001
A Cape Town	3.3	Ae Cape Town	5.15	1.85	.481	3.9	.009
A Pupils	4.54	Ae Pupils	6.39	1.85	.313	5.9	.001
E "	1.01	EC "	0.2	0.81	.080	10.2	.001
A "	4.54	AC "	0.5	4.04	.209	19.3	.001
EC "	0.2	AC "	0.5	0.3	.128	2.3	.121

1. These Means were taken from Table LXII, page 93.

11. See Formula and Explanatory Remarks, page 96.

111. For Performance in Vocabulary by same groups, see page 75.

TABLE LXVI.

APPLICATION OF PROBABLE ERROR TO THE RESULTS WHEN THEMEANS(i) OF CERTAIN GROUPS ARE COMPARED.(ii)CONTAMINATION IN GRAMMAR.(iii)

(The Means of Ea and Ae Pupils are of the First Language only).

Group	Mean	Group	Mean	Diff. between Means	P.Error of diff. between Means	Critical Ratio	P = (1-)
E Boys	5.75	E Girls	6.45	0.7	0.875	0.8	.590
A "	5.4	A "	6.0	0.6	0.675	0.9	.544
E Port E.	5.65	E Cape Town	6.55	0.9	0.874	1.0	.500
A " "	5.5	A " "	5.9	0.4	0.677	0.6	.686
E " "	5.65	A Port E.	5.5	0.15	0.880	0.2	.893
E Cape Town	6.55	A Cape Town	5.9	0.65	0.670	1.0	.500
E Pupils	6.1	A Pupils	5.7	0.4	0.553	0.7	.637
Ea Boys	15.07	Ea Girls	19.04	4.03	1.40	2.3	.050
Ae "	11.52	Ae "	15.52	4.0	1.88	2.1	.157
Ea Port E.	18.42	Ea Cape Town	15.48	2.94	1.41	2.1	.157
Ae " "	12.08	Ae " "	15.0	2.92	1.78	1.6	.281
Ea " "	18.42	Ae Port E.	12.08	6.34	1.60	4.0	.007
Ea Cape Town	15.48	Ae Cape Town	15.0	0.48	1.62	0.3	.840
Ea Pupils	16.86	Ae Pupils	13.35	3.51	1.17	3.0	.043
E Port E.	5.65	Ea Port E.	18.42	12.77	1.16	11.0	.001
E Cape Town	6.55	Ea Cape Town	15.48	8.94	1.18	7.6	.001
E Pupils	6.1	Ea Pupils	16.86	10.76	0.848	12.7	.001
A Port E.	5.5	Ae Port E.	12.08	6.58	1.40	4.7	.002
A Cape Town	5.9	Ae Cape Town	15.0	9.1	1.29	7.1	.001
A Pupils	5.7	Ae Pupils	13.35	7.65	0.981	7.8	.001
E "	6.1	EC "	1.07	5.03	0.489	10.29	.001
A "	5.7	AC "	2.23	3.47	0.451	7.7	.001
EC "	1.07	AC "	2.23	1.16	0.369	3.1	.037

i. These Means were taken from Table LXIII, page 94.

ii. See Formula and Explanatory Remarks, page 96.

iii. For Performance in Grammar by same groups, see page 76.

TABLE LXVII.

APPLICATION OF PROBABLE ERROR TO THE RESULTS WHEN THE
MEANS(i) OF CERTAIN GROUPS ARE COMPARED.(ii)

CONTAMINATION IN VOCABULARY + GRAMMAR (Percentages)(iii)

(The Means of the Ea and Ae Pupils are of the First Language only.)

Group	Mean	Group	Mean	Diff. between Means	P.Error of diff. between Means	Critical Ratio	P = (1-)
E Boys	3.39	E Girls	3.6	0.21	0.463	0.5	.736
A "	4.99	A "	5.25	0.26	3.85	0.7	.637
E Port E.	3.39	E Cape Town	3.6	0.21	0.464	0.5	.736
A " "	5.64	A " "	4.6	1.04	0.375	2.8	.059
E " "	3.39	A Port E.	5.64	2.25	0.471	4.8	.001
E Cape Town	3.6	A Cape Town	4.6	1.0	0.366	2.7	.069
E Pupils	3.49	A Pupils	5.12	1.63	0.300	5.4	.001
Ea Boys	8.46	Ea Girls	10.5	2.04	0.729	2.8	.059
Ae "	9.12	Ae "	11.0	1.88	1.02	1.8	.225
Ea Port E.	10.31	Ea Cape Town	8.56	1.75	0.731	2.4	.105
Ae " "	9.71	Ae " "	10.33	0.62	1.01	0.6	.686
Ea " "	10.31	Ae Port E.	9.71	0.6	0.848	0.7	.637
Ea Cape Town	8.56	Ae Cape Town	10.33	1.77	0.909	1.9	.200
Ea Pupils	9.38	Ae Pupils	9.98	0.6	0.631	1.0	.500
E Port E.	3.39	Ea Port E.	10.31	6.92	0.620	11.2	.001
E Cape Town	3.6	Ea Cape Town	8.56	4.96	0.604	8.2	.001
E Pupils	3.49	Ea Pupils	9.38	5.89	0.443	13.3	.001
A Port E.	5.64	Ae Port E.	9.71	4.07	0.747	5.5	.001
A Cape Town	4.6	Ae Cape Town	10.33	5.73	0.771	7.4	.001
A Pupils	5.12	Ae Pupils	9.98	4.86	0.540	9.0	.001
E "	3.49	EC "	0.67	2.82	0.258	10.9	.001
A "	5.12	AC "	1.37	3.75	0.239	15.7	.001
EC "	0.67	AC "	1.37	0.7	0.183	3.8	.010

i. These Means were taken from Table LXIV, page 95.

ii. See Formula and Explanatory Remarks, page 96.

iii. For Performance in Vocabulary + Grammar by same groups, see page 77.

TABLE LXVIII.

WORDS IN ORDER OF DIFFICULTY.

E Pupils	EC Pupils	A Pupils	AC Pupils	E(P.E.)	A(P.E.)	E(C.T.)	A(C.T.)
1 roof	80 roof	30 dak	80 dak	30 roof	40 dak	40 roof	40 dak
2 kitchen	" chimney	" stoel	" skoorsteen	" chimney	" stoel	" kitchen	" kombuis
3 bathroom	" kitchen	" skêr	" kombuis	" kitchen	" skêr	" bathroom	" bathroom
4 chair	" bathroom	" kussing	" stoel	" bathroom	" kussing	" chair	" stoel
5 curtains	" chair	" vuur	" gordyne	" chair	" vuur	" curtains	" gordyne
6 piano	" curtains	" sleutel	" klavier	" curtains	" sleutel	" piano	" skêr
7 scissors	" piano	" geld	" klerekas	" piano	" geld	" scissors	" kussing
8 fire	" scissors	" wind	" skêr	" scissors	" wind	" pillow	" vuur
9 key	" pillow	" koek	" kussing	" fire	" koek	" fire	" stoffer
10 grapes	" tray	" suiker	" kers	" key	" suiker	" key	" sleutel
11 wind	" jug	" knope	" vuur	" grapes	" knope	" axe	" geld
12 cake	" candle	" broek	" stoffer	" wind	" broek	" money	" druiwe
13 sugar	" fire	" swem	" sleutel	" cake	" swem	" grapes	" blaaf
14 glove	" coal	" borsel tande	" byl	" sugar	" borsel tande	" wind	" wind
15 brushing teeth	" duster	" kam hare	" geld	" glove	" medisyne	" cake	" koek
6 combing hair	" key	" wegkruipertjie	" druiwe	" trousers	" kam hare	" sugar	" kaas

E Pupils		EC Pupils		A Pupils		AC Pupils		E(P.E.)		A(P.E.)		E(C.T.)		A(C.T.)		
17	glasses	80	axe	30	pop	80	blaf	30	b. teeth	40	wegkruipertjie	40	glove	40	suiker	40
18	swings	"	money	"	klim	"	padda	"	combing hair	"	pop	"	buttons	"	knope	"
19	climbs	"	grapes	"	veeg	"	geel	"	glasses	"	klim	"	swims	"	broek	"
20	fishes	"	frog	"	stryk	"	suur	"	dolls	"	veeg	"	b. teeth	"	swem	"
21	irons	"	yellow	"	lek	"	wolke	"	swings	"	stryk	"	combing hair	"	borsel tande	"
22	bites	"	clouds	"	byt	"	wind	"	climbs	"	lek	"	glasses	"	combing hair	"
23	church	"	wind	"	kerk	"	skadu	"	fishes	"	byt	"	hide-and-seeK	"	wegkruipertjie	"
24	shop	"	shadow	"	winkel	"	koek	"	sweeps	"	kerk	"	swings	"	pop	"
25	gate	"	cake	"	hek	"	suiker	"	irons	"	winkel	"	climbs	"	klim	"
26	shaves	"	cheese	"	pluk	"	handskoen	"	scrubs	"	hek	"	fishes	"	visvang	"
27	riding on h.	"	sugar	"	skeer	"	knope	"	horns	"	pluk	"	irons	"	veeg	"
28	chimney	79	sausage	"	perdry	"	broek	"	licks	"	skeer	"	kicks	"	stryk	"
29	axe	"	glove	"	druive	79	swem	"	bites	"	perdry	"	bites	"	skop	"
30	money	"	buttons	"	visvang	"	borsel tande	"	church	"	byl	39	church	"	lek	"
31	buttons	"	trousers	"	treinspoor	"	gaap	"	shop	"	druive	"	shop	"	byt	"
32	trousers	"	apron	"	skop	"	medisyne	"	gate	"	kruip	"	gate	"	kerk	"
33	swims	"	swims	"	badkamer	78	kam hare	"	shaves	"	visvang	"	picking	"	winkel	"

101

E Pupils		EC Pupils		A Pupils		AC Pupils		E(P.E.)		A(P.E.)		E(C.T.)		A(C.T.)		
34	dolls	79	brushing teeth	30	gordyne	77	self	30	riding on h.	40	skop	39	shaves	40	hek	40
35	kicks	"	plaster	"	byl	"	wegkruipertjie	"	axe	39	wa	"	riding on h.	"	pluk	"
36	licks	"	combing hair	"	blaf	"	kruip	"	money	"	treinspoor	"	chimney	39	skeer	"
37	picks	"	glasses	"	voorskoot	"	klim	"	rainbow	"	badkamer	"	candle	"	treinspoor	"
38	crawls	78	skipping	"	wa	"	veeg	"	buttons	"	wolke	"	coal	"	perdry	"
39	sweeps	"	hide and seek	"	kombuis	76	spit	"	swims	"	voorskoot	"	cheese	"	kers	39
40	candle	77	dolls	"	kers	"	stryk	"	medicine	"	horings	"	trousers	"	geel	"
41	digs	"	swings	"	medisyne	"	horings	"	crawls	"	straat	"	skipping	"	voorskoot	"
42	scrubs	"	draws	"	kruip	"	skop	"	kicks	"	gordyne	37	dolls	"	skrop	"
43	rainbow	76	crawls	"	kaas	75	lek	"	butcher	"	kers	"	crawls	"	skulp	"
44	cheese	"	climbs	"	skrop	"	byt	"	bridge	"	blaf	"	digs	"	beker	38
45	horns	"	fishes	"	horings	"	kerk	"	picks	"	kombuis	36	licks	"	kool	"
46	butcher	"	sweeps	"	straat	74	winkel	"	candle	38	kruisbande	"	street	"	byl	"
47	bridge	"	digs	"	skulp	"	hek	"	digs	"	self	"	tray	38	ketting	"
48	pillow	76	irons	"	kool	73	brug	"	wardrobe	37	skrop	"	duster	"	wa	"
49	coal	"	horns	"	wolke	"	pluk	"	barks	"	brug	"	yellow	"	klavier	37
50	yellow	"	kicks	"	self	"	skeer	"	yellow	"	kruwa	"	sausage	"	klerekas	"

102

E Pupils		EC Pupils		A Pupils		AC Pupils		E(P.H.)		A(P.E.)		E(C.T.)		A(C.T.)		
51	sausage	75	licks	30	brug	73	wa	30	shadow	37	kool	35	sweeps	38	suur	37
52	skipping	"	bites	"	geel	72	treinspoor	"	cheese	"	lantern	"	chain	"	handskoen	"
53	tray	74	church	"	handskoen	"	perdry	"	sausage	"	kaas	"	barks	37	self	"
54	duster	"	butcher	"	kruwa	70	badkamer	29	top	"	handskoen	"	shadow	"	kribp	"
55	barks	"	shop	"	gaap	69	skinkbord	"	tray	36	skulp	"	rainbow	"	horings	"
56	shadow	"	street	"	betaal	68	beker	29	jug	"	gaap	34	apron	"	brug	"
57	top	"	pillar-box	"	suur	67	volstruis	"	coal	"	geel	33	top	"	betaal	35
58	apron	73	watering-can	"	kruisbande	"	betaal	"	duster	"	rakke	32	scrabs	"	wors	"
59	medicine	"	gate	"	ketting	"	kaas	"	clouds	"	betaal	"	butcher	"	medisyne	"
60	street	"	bridge	"	padda	66	wors	"	apron	"	melkkan	"	bridge	"	straat	"
61	jug	72	shell	"	klavier	65	voerskoot	"	skipping	"	skoobsteen	31	jug	36	padda	"
62	clouds	"	riding on h.	"	skoorsteen	64	pleister	"	draws	"	padda	"	frog	"	wolke	"
63	wardrobe	71	grate	29	rakke	"	toll	"	pillow	35	suur	30	clouds	"	gaap	"
64	chain	"	sour	"	beker	63	pop	"	plaster	"	skadu	"	horns	"	toll	"
65	frog	70	egg-cup	"	stoffer	62	visvang	"	shell	"	teken	29	braces	35	kruwa	34
66	plaster	"	elbow	"	teken	"	melkkan	"	wheelbarrow	"	ketting	"	plaster	"	skoorsteen	35
67	shell	"	medicine	"	lantern	61	ketting	"	frog	34	klavier	28	shell	"	teken	"

103

E Pupils		EE Pupils		A Pupils		AC Pupils		E(P.E.)		A(P.E.)		E(C.T.)		A(C.T.)		
68	draws	69	top	29	skadu	61	skulp	29	crooked	34	skinkbord	25	wardrobe	34	rakke	32
69	hide-and-seek	68	chain	"	wors	60	rakke	28	street	"	beker	"	medicine	"	skinkbord	"
70	braces	67	picks	"	klerekas	59	kool	"	elbow	33	krom	"	draws	33	skadu	31
71	crooked	66	shaves	"	skinkbord	57	lantern	"	chain	"	kraai	24	crooked	32	reënboog	"
72	wheelbarrow	"	wheelbarrow	"	reënboog	55	kraai	"	braces	32	reënboog	"	slate	"	kruisbande	"
73	slate	64	shelves	28	spit	50	kruisbande	"	slate	"	wors	"	sour	31	spit	28
74	elbow	62	barks	"	melkkan	49	teken	"	shelves	30	stoffer	22	wheelbarrow	"	volstruis	27
75	shelves	60	rainbow	"	tol	46	lei	"	pillar-box	"	spit	"	shelves	30	lantern	26
76	sour	"	slate	"	krom	45	stop	"	rake	"	klerekas	21	elbow	29	eierkelkie	"
77	pillar-box	59	scrubs	"	volstruis	44	skrop	"	sour	29	ploeg	20	pillar-box	"	elmboog	"
78	egg-cup	53	rake	"	elmboog	"	straat	"	egg-cup	"	hark	"	pays	27	stop	21
79	rake	"	crows	27	hark	41	ploeg	"	hide-and-seek	28	saal	19	ointment	"	hark	"
80	lantern	51	crooked	"	ploeg	40	hark	"	watering-can	"	elmboog	18	lantern	28	krom	20
81	ointment	49	saddle	"	saal	38	kruisbande	"	milk-can	26	volstruis	17	diamond	25	bril	"
82	diamond	47	wardrobe	26	eierkelkie	36	reënboog	27	lantern	25	lei	16	crows	"	ploeg	"
83	pays	"	lantern	"	kraai	34	bril	"	crows	23	almanak	14	calendar	24	riemspring	19
84	calendar	46	pays	25	lei	"	saal	"	saddle	"	stop	13	egg-cup	"	saal	"

401

E Pupils			EC Pupils			A Pupils			AC Pupils			E(P.E.)			A(P.E.)			E(C.T.)			A(C.T.)		
85	yawns	45	braces	25	stop	34	gieter	27	calendar	22	posbus	12	yawns	24	lei	18							
86	milk-can	44	yawns	"	riemspring	30	eierkelkie	26	diamond	"	riemspring	11	rake	23	gieter	"							
87	saddle	43	lighting	24	pleister	27	elmsboog	"	ointment	"	tel	"	darns	22	pleister	17							
88	darns	42	railway-lines	"	bril	"	riemspring	"	yawns	21	eierkelkie	10	grate	20	melkkan	"							
89	watering-can	39	darns	23	almanak	25	krom	25	pays	20	pleister	"	saddle	"	swaai	16							
90	crows	38	sponge	21	gieter	"	petrolpomp	"	darns	"	blaker	7	milk-can	18	kaggel	12							
91	ostrich	33	diamond	20	posbus	16	swaai	24	ostrich	19	bril	"	railway-lines	14	almanak	11							
92	grate	29	milk-can	"	kaggel	17	kaggel	22	waggon	"	gieter	"	ostrich	"	petrolpomp	"							
93	waggon	24	ostrich	18	swaai	"	posbus	21	lightning	14	kaggel	5	sponge	13	kraai	10							
94	sponge	22	parents	"	blaker	15	blaker	20	candlestick	9	petrolpomp	4	watering-can	11	blaker	8							
95	railway-lines	20	waggon	18	petrolpomp	"	weerlig	15	grate	"	ouers	3	candlestick	7	ouers	"							
96	lightning	19	calendar	17	ouers	11	diamant	14	sponge	"	weerlig	"	parents	"	diamant	6							
97	candlestick	16	candlestick	14	diamant	8	almanak	11	ploughs	7	slagter	"	lightning	5	posbus	"							
98	parents	12	ploughs	11	weerlig	"	ouers	"	railway-lines	6	diamant	2	waggon	"	weerlig	5							
99	ploughs	8	petrol-pump	"	slagter	6	spons	10	parents	5	spons	1	petrol-pump	4	slagter	3							
100	petrol-pump	5	ointment	8	spons	3	slagter	"	petrol-pump	1	swaai	"	ploughs	1	spons	2							

T A B L E LXIX

RANK DIFFERENCE CORRELATION CO-EFFICIENT IN VOCABULARY.

The amount of Agreement in Vocabulary in the case of certain groups of pupils was as follows:-

E Pupils of Port Elizabeth and E Pupils of Cape Town	= 0.874
A " " " " " A " " " " "	= 0.890
E Pupils " A Pupils	= 0.713
E " " EC "	= 0.778
A " " AC "	= 0.802
EC " " AC "	= 0.589

The correct answers in Vocabulary of the various groups were tabulated in order of Difficulty.(1)

The Amount of Agreement in Vocabulary of the above-mentioned groups of pupils was then calculated. e.g.

Words in Order of Difficulty	No. of words known	Place Value of Words	Words in Order of Difficulty	No. of Words known	Place Value of Words	Words	d	d ²
EC Pupils	(20)		E Pupils	(20)				
1 roof	20	2 $\frac{1}{2}$	1 roof	20	1 $\frac{1}{2}$	1 roof	1	1
2 chimney	20	2 $\frac{1}{2}$	2 chair	20	1 $\frac{1}{2}$	2 chimney	2 $\frac{1}{2}$	6 $\frac{1}{4}$
3 kitchen	20	2 $\frac{1}{2}$	3 kitchen	19	3 $\frac{1}{2}$	3 kitchen	1	1
4 bathroom	20	2 $\frac{1}{2}$	4 bathroom	19	3 $\frac{1}{2}$	4 bathroom	1	1
5 chair	18	6	5 chimney	18	5	5 chair	4 $\frac{1}{2}$	22 $\frac{1}{4}$
6 curtains	18	6	6 curtains	12	6 $\frac{1}{2}$	6 curtains	1 $\frac{1}{2}$	2 $\frac{1}{4}$
7 piano	18	6	7 tray	12	6 $\frac{1}{2}$	7 piano	2	4
8 scissors	15	8 $\frac{1}{2}$	8 piano	11	8	8 scissors	1 $\frac{1}{2}$	2 $\frac{1}{4}$
9 tray	15	8 $\frac{1}{2}$	9 scissors	10	9	9 tray	2	4
10 jug	14	10	10 candle	9	10	10 jug	2	4
11 candle	10	11 $\frac{1}{2}$	11 fire	8	11	11 candle	1 $\frac{1}{2}$	2 $\frac{1}{4}$
12 fire	10	11 $\frac{1}{2}$	12 jug	7	12	12 fire	1 $\frac{1}{2}$	2 $\frac{1}{4}$
								46 $\frac{1}{2}$

Formula used:-(ii) The Amount of Agreement in two Orders, or

$$\begin{aligned}
 r &= 1 - \frac{6 \sum (d^2)}{n(n^2 - 1)} \\
 &= 1 - \frac{6 \times 46.5}{12(144 - 1)} = 1 - \frac{279}{1476} \\
 &= 1 - 0.189 \\
 &= 0.811
 \end{aligned}$$

1. See Table LXVIII, pages 100 - 105.
 ii. d = Difference in place value of words.
 n = Number of test words.

TABLE LIX.

WORDS KNOWN BY THE E AND Ea PUPILS IN THE SECOND LANGUAGE
BUT NOT IN THEIR FIRST LANGUAGE.

	S (P.E.)	E (C.T.)	TOTALS	Ea (P.E.)	Ea (C.T.)	TOTALS
	40	40	80	24	27	51
padde	4	2	6	3		3
broek				1	1	2
rekke				3	3	6
kussing				5	10	15
byl				2		2
kraai				2	3	5
betaal				2	4	6
weerlig				1		1
wors				1	1	2
gasp				2	1	3
salf				2		2
wegkruipertjie				5	1	6
wa				5	3	8
petrolpomp				1		1
treinspoor				9	10	19
blaker				1		1
volstruis				2	1	3
blaf				5	3	8
geel				1	1	2
kruisbande				1	2	3
elmbog				1	2	3
riemspring				1	5	6
kruip				1	1	2
stryk				1		1
stop				2	3	5
skrop				1		1
lek				1		1
beker					4	4
klerkas					7	7
kool				1	3	4
pluk				1	1	2
ketting				1	1	2
krom					1	1
suur					3	3
voorskoot					1	1
tol					1	1
teken					1	1
spit					2	2
saal					1	1
straat					1	1
ploeg					5	5
hark					3	3
welkkan					1	1
skulp					1	1
badkamer					1	1
kere					2	2
eierkelkie					1	1
visvang					1	1
horings					2	2
sker					1	1
kruie					1	1
pleister					1	1
Totale	4	2	6	65	102	167
Per Cent	0.1	0.05	0.075	2.7	4.3	3.3

TABLE LXI.

WORDS KNOWN BY THE A AND THE Ae PUPILS IN THE SECOND

BUT NOT IN THEIR FIRST LANGUAGE.

	A(P.E.)	A(C.T.)	TOTALS	Ae(P.E.)	Ae(C.T.)	TOTALS
	40	40	80	26	20	46
kitchen	3		3	3	1	4
piano	6		6	9	1	10
wardrobe	18	3	21	18	1	19
jug	7	2	9	5		5
duster	9		9	6	4	12
diamond	1		1	5	2	7
plaster	16	22	38	17	7	24
skip	26	19	45	20	16	36
top	25	2	27	21	5	26
swing	39	23	61	24	11	35
slate	11	10	21	8	9	17
butcher	4	4	8	16	16	31
pillar-box	2	4	6	13	8	21
rake	1		1		2	2
tray	1	2	3	4	1	5
sausage	1	1	2	5	4	9
glove	1	3	4	7	5	12
braces		3	3		1	1
saddle		1	1			
wheelbarrow		1	1		1	1
candlestick	1		1			
draws	1		1	7	4	11
chimney		1	1	2	1	3
waggon		1	1			
bathroom				1		1
shelves				4		4
crooked				2	3	5
rainbow				1	8	9
egg-cup				7	6	13
sponge				3		3
glasses				14	7	21
watering-can				2	2	4
shell				1	2	3
curtains					2	2
calendar					2	2
scissors					1	1
coal					1	1
frog					1	1
yellow				1	1	2
clouds					1	1
trousers					1	1
hide-and-seek					2	2
crawls					2	2
sweeps					1	1
digs					1	1
irons					1	1
scrubs					1	1
horns					1	1
street					1	1
chain					1	1
shaves					3	3
pays				1	0	1
milk-can				1		1
axe					1	1
buttons					1	1
bridge					1	1
railway-lines					1	1
Totals	172	102	274	230	155	385
Per Cent	4.3	2.5	3.4	8.6	7.9	8.4

CHAPTER 5.

CONCLUSIONS.

(a) SUITABILITY OF THE TESTS:

1. In spite of the fact that certain objects seemed easier to designate and certain situations easier to explain or interpret in English than in Afrikaans, and vice versa, (i) the Vocabulary Test is suitable for both English-speaking and Afrikaans-speaking pupils of the age group 6 plus years (i.e., school beginners) because the amount of agreement in the rank order of difficulty of the test words in the case of E pupils and A pupils is as high as 0.713. (ii)

Moreover, the difference between the means of the Vocabulary Scores in the case of AC pupils and EC pupils ($92.7 - 92.47 = 0.23$; critical ratio 0.3) is not significant. (iii)

The EC pupils were selected from fee-paying English-medium Primary Schools. These pupils came from homes where the best type of English was spoken. The AC pupils were selected from homes where the social-economic status approximated to that of the EC pupils. (iv)

2. In spite of the fact that certain words seemed more familiar in certain particular geographical areas, the Vocabulary Test is suitable for testing pupils of the required age group in all areas, (in Port Elizabeth and environs, in Cape Town and the Western Province generally). This follows from the fact that the amount of agreement in the rank order of difficulty of the test words in the case of certain groups respectively, is the following: (v)

E pupils of Port Elizabeth and E pupils of Cape Town:	0.874
A " " " " " A " " " " ":	0.890
E pupils and EC pupils.....	0.778
A " " AC "	0.802

-
- i. See Words in Order of Difficulty, Table LXVlll, pp. 100 - 105.
 - ii. See Table LXlX, page 106.
 - iii. See Table XL, page 75.
 - iv. See page 11 No. 6, and page 24.
 - v. See Table LXlX, page 106.

Further, the difference between the means of the Total Vocabulary Scores in the case of E pupils tested in Port Elizabeth and of those tested in Cape Town, is as follows:(i)

E(P.E.)pupils and E(C.T.)pupils, $82.85-82.63 = 0.22$; c.r.(ii) 0.22

The difference between the means of the Vocabulary Scores of the above groups is as follows:(iii)

E(P.E.)pupils and E(C.T.)pupils, $82.75-82.58 = 0.17$; c.r. 0.1

In neither case is the difference significant.

If the Total Vocabulary Scores and the Vocabulary Scores respectively of the Afrikaans-speaking pupils tested in Cape Town and of those tested in Port Elizabeth are compared, the following results are obtained:

Total Vocabulary:(iv)

A(C.T.)pupils and A(P.E.)pupils, $82.13-77.85 = 4.28$; c.r. 4.2

Vocabulary:(v)

A(C.T.)pupils and A(P.E.)pupils, $79.58-73.55 = 6.03$; c.r. 5.4

In both cases the difference is definitely significant.

But here another factor obtrudes itself, namely the social-economic factor which will be mentioned in No.(b)1 (vi). The E and the A pupils were selected to be representative of Cape Town and Port Elizabeth. ~~Whereas~~ The social-economic status of the E pupils of Cape Town and those of Port Elizabeth may be considered to be approximately the same, seeing that they were in both cases drawn from free schools, and seeing that there were fee-paying English-medium Primary Schools in both cities.

As far as the A pupils are concerned, in Cape Town a number of children from superior Afrikaans-speaking homes attend the Jan van Riebeeck and Simon v.d. Stel schools, whereas in Port Elizabeth the children from similar homes are often sent to fee-paying English-medium schools. Consequently the social-economic status of the A pupils tested in Port Elizabeth and in Cape Town respectively cannot be considered to be the same. This would therefore account for the difference in favour of the A pupils tested in Cape Town.

i. and iv. See Table XXXIX, page 74.
 ii. On the following pages c.r.will be used to denote
 iii. " v. See Table XL, page 75. critical ratio.
 vi. See page 112.

3. The Grammar Test is suitable for both English-speaking and Afrikaans-speaking pupils because the difference between the means of the Grammar Scores in the case of the following groups is as follows:(1)

AC pupils and EC pupils, $96.67 - 96.13 = 0.54$; c.r. 1.0

This difference is not significant.

4. That the Grammar Test is suitable for pupils in Port Elizabeth and Cape Town is shown by the difference between the means of the Grammar Scores in the case of the following groups respectively.(ii)

E(P.E.)pupils and E(C.T.)pupils, $87.35 - 86.4 = 0.95$; c.r. 0.7

A(C.T.)pupils " A(P.E.)pupils, $89.55 - 87.8 = 1.75$; c.r. 1.6

In neither case is the difference significant.

5. The complete test, i.e. Vocabulary+Grammar, is suitable for both English-speaking and Afrikaans-speaking pupils, because the difference between the means of the Vocabulary + Grammar Scores in the case of the following groups is as follows:(iii)

AC pupils and EC pupils, $94.68 - 94.33 = 0.35$; c.r. 0.8

This difference is not significant.

6. The complete test, i.e. Vocabulary + Grammar, is suitable for testing pupils in Port Elizabeth and Cape Town, the difference between the means of the Vocabulary + Grammar Scores in the case of E pupils tested in these cities being: (iv)

E(P.E.)pupils and E(C.T.)pupils, $85.05 - 84.49 = 0.56$; c.r. 0.5

This difference is not significant.

If the Vocabulary + Grammar Scores of the A pupils tested in Cape Town and of those tested in Port Elizabeth are compared, the following results are obtained:(v)

A(C.T.)pupils and A(P.E.)pupils, $84.56 - 80.68 = 3.88$; c.r. 4.0

This difference is significant, but here the same modifying factor obtrudes itself as in the case of the Total Vocabulary and the Vocabulary Scores of the A pupils of Port Elizabeth and Cape Town.
(vi)

1. See Table XL1, page 76.

ii. See Table XL1, page 76.

iii. See Table XL11, page 77.

iv. See Table XL11, page 77.

v. See Table XL11, page 77.

vi. See No.2, page 110.

(b) PERFORMANCE:

1. If the social-economic status is higher, the score is higher. This is shown by the figures which follow, all of which reveal significant differences:

Vocabulary:(i)

EC pupils and E pupils, $92.47 - 82.66 = 9.81$; c.r. 13.5

Grammar:(ii)

EC pupils and E pupils, $96.13 - 86.88 = 9.25$; c.r. 11.4

Vocabulary + Grammar:(iii)

EC pupils and E pupils, $94.33 - 84.77 = 9.56$; c.r. 14.4

If the means of the scores of the AC pupils are compared with those of the A pupils, significant differences are also revealed:

Vocabulary:(iv)

AC pupils and A pupils, $92.7 - 76.56 = 16.14$; c.r. 20.5

Grammar:(v)

AC pupils and A pupils, $96.67 - 88.68 = 7.99$; c.r. 12.4

Vocabulary + Grammar:(vi)

AC pupils and A pupils, $94.68 - 82.62 = 12.06$; c.r. 20.4

But here it will be incorrect to argue that the results were influenced by the social-economic status alone, because 100 per cent of the A pupils were selected from city schools, while 80 per cent of the AC pupils attended country schools.(vii) The difference may therefore be due either (a) to the social-economic condition, or (b) to the difference between town and country, or (c) in part to each of (a) and (b).

2. A number of the 6 plus year old pupils in Port Elizabeth and Cape Town knew certain words in the Vocabulary of their second language but not in their first language. This is not so much in evidence as far as the E pupils are concerned who used 0.075 per cent of such words. But it is obvious in the case of the Ae, the Ea, and even the A pupils, who used 8.4, 3.3, and 3.4 per cent respectively of such words.(viii)

i. and iv. See Table XL, page 75.
 ii. " v. See Table XLI, page 76.
 iii. " vi. See Table XLII, page 77.
 vii. See page 24.
 viii. See Tables LXX and LXXI, pp. 107 and 108.

3. A comparison between the means of the Total Vocabulary and the Vocabulary Scores respectively, in the case of unilingual and bilingual pupils, reveals that:

(a) The Vocabulary of the first language of the English-speaking pupils who are bilingual falls below that of the unilingual English-speaking pupils of the same age group. The difference between the means of the Vocabulary Scores is significant, the critical ratio being 7.9.

(b) The A pupils obtain a higher score in Vocabulary than the Ae pupils in the Vocabulary of their first language. The chances are 10 in 1,000 that the difference between the means is not significant, the critical ratio being 3.8.

(c) In Total Vocabulary the mean of the Scores of the Ea pupils falls below that of the Scores of the E Pupils. The difference is significant, the critical ratio being 4.3.

(d) The Ae pupils obtain a slightly higher average score than the A pupils, as far as the Total Vocabulary is concerned. The difference between the means of the scores is not significant, the critical ratio being 1.5.

Total Vocabulary:(i)

E pupils and Ea pupils, $82.74 - 78.82 = 3.92$; c.r. 4.3

Ae " " A " , $81.17 - 79.99 = 1.18$; c.r. 1.5

Vocabulary:(ii)

E pupils and Ea pupils, $82.66 - 75.55 = 7.11$; c.r. 7.9

A " " Ae " , $76.56 - 72.80 = 3.76$; c.r. 3.8

4. Although, in individual cases, a bilingual pupil may obtain a high score in the Grammar of his/her mother-tongue, the standard of the Grammar of the first language of both the Ea and the Ae pupils falls below the standard of that of the E and the A pupils. The difference between the means of the Grammar Scores, in the case of the E and the Ea pupils on the one hand, and the A and the Ae pupils on the other, is as follows:(iii)

E pupils and Ea pupils, $86.88 - 71.76 = 15.12$; c.r. 12.5

A " " Ae " , $88.68 - 79.04 = 9.64$; c.r. 7.4

In both cases the difference is significant.

1. See Table XXXIX, page 74.

ii. See Table XL, page 75.

iii. See Table XLI, page 76.

5. Although there are cases where bilingual pupils use a more extensive vocabulary, and express themselves better in their first language than some of the unilingual pupils, on the whole it seems as if the standard of the home language of bilingual pupils falls below the standard attained by the unilingual pupils. The difference between the means of the Vocabulary + Grammar Scores, in the case of the E and the Ea pupils on the one hand, and the A and the Ae pupils on the other, is as follows:(1)

E pupils and Ea pupils, $84.77 - 73.66 = 11.11$; c.r. 12.1

A " " Ae " , $82.62 - 75.91 = 6.71$; c.r. 6.7

In both cases the difference is significant.

6. Although individual differences may occur either way, there is not much difference in the performance of unilingual boys and girls generally. The difference between the means of the scores in the different tests respectively, in the case of unilingual boys and girls, is as follows:

Vocabulary:(ii)

E girls and E boys, $83.53 - 81.8 = 1.73$; c.r. 1.4

A boys and A girls, $77.13 - 76.0 = 1.13$; c.r. 0.9

Grammar:(iii)

E boys and E girls, $87.30 - 86.45 = 0.85$; c.r. 0.6

A " " A " , $89.20 - 88.18 = 1.05$; c.r. 1.0

Vocabulary + Grammar:(iv)

E girls and E boys, $84.99 - 84.55 = 0.44$; c.r. 0.4

A boys and A girls, $83.16 - 82.08 = 1.08$; c.r. 1.1

None of the above differences is significant.

7. In the case of bilingual pupils, the difference between the means of the scores in the different tests respectively, in the case of boys and girls, is as follows:

i. See Table XLii, page 77.

ii. See Table XL, page 75.

iii. See Table XLi, page 76.

iv. See Table XLii, page 77.

Vocabulary:(i)

Ea boys and Ea girls, $76.57 - 74.30 = 2.27$; c.r. 1.7.

Ae " " Ae " , $73.88 - 71.52 = 2.36$; c.r. 1.5

Grammar:(ii)

Ea boys and Ea girls, $75.14 - 67.65 = 7.49$; c.r. 4.1

Ae " " Ae " , $82.16 - 75.33 = 6.83$; c.r. 2.9

Vocabulary + Grammar:(iii)

Ea boys and Ea girls, $75.86 - 70.98 = 4.88$; c.r. 3.6

Ae " " Ae " , $78.00 - 73.43 = 4.57$; c.r. 2.8

The figures given above show that:

(a) Though these results are not all significant individually there seems to be a tendency for the bilingual boys to obtain better scores than the bilingual girls.

(b) In Vocabulary the difference between the means of the scores of the boys and the girls is not significant in the case of either group, i.e. the Ea and the Ae pupils.

(c) In Grammar the difference between the means of the scores in the case of the Ea boys and the Ea girls is significant, the critical ratio being 4.1, while in the case of the Ae pupils the chances are 50 in 1,000 that the difference is not significant, the critical ratio being 2.9.

(d) In Vocabulary + Grammar the chances are 15 in 1,000 that the difference between the means of the scores in the case of the Ea boys and the Ea girls is not significant, the critical ratio being 3.6, while in the case of the Ae pupils the chances are 59 in 1,000 that the difference is not significant, the critical being 2.8

8. There is not a significant difference between the means of the scores in any of the tests in the case of the E pupils of Port Elizabeth and those of Cape Town. In fact, in every case the difference is very slight, always in favour of the E pupils of Port Elizabeth. The results follow.

i. See Table XL, page 75.

ii. See Table XLi, page 76.

iii. See Table XLii, page 77.

Total Vocabulary:(i)

E(P.E.)pupils and E(C.T.)pupils, $82.85 - 82.63 = 0.22$; c.r. 0.2

Vocabulary:(ii)

E(P.E.)pupils and E(C.T.)pupils, $82.75 - 82.58 = 0.17$; c.r. 0.1

Grammar:(iii)

E(P.E.)pupils and E(C.T.)pupils, $87.35 - 86.40 = 0.95$; c.r. 0.7

Vocabulary + Grammar:(iv)

E(P.E.)pupils and E(C.T.)pupils, $85.05 - 84.49 = 0.56$; c.r. 0.5

9. In the case of the A pupils the results reveal that:

(a) The average scores of the Port Elizabeth group fall below those of the Cape Town group in all the tests. This may probably be attributed to a difference in the social-economic status as discussed on page 110.

(b) In Grammar the difference between the means of the scores is not significant, the critical ratio being 1.6.

(c) In Total Vocabulary, Vocabulary, and Vocabulary + Grammar Scores the difference between the means is significant, the critical ratio being 4.2, 5.4 and 4.0 respectively.

The difference between the means of the scores in the different tests respectively, in the case of the A pupils of Cape Town and the A pupils of Port Elizabeth, is as follows:

Total Vocabulary:(v)

A(C.T.)pupils and A(P.E.)pupils, $82.13 - 77.85 = 4.28$; c.r. 4.2

Vocabulary:(vi)

A(C.T.)pupils and A(P.E.)pupils, $79.58 - 73.55 = 6.03$; c.r. 5.4

Grammar:(vii)

A(C.T.)pupils and A(P.E.)pupils, $89.55 - 87.8 = 1.75$; c.r. 1.6

Vocabulary + Grammar:(viii)

A(C.T.)pupils and A(P.E.)pupils, $84.56 - 80.68 = 3.88$; c.r. 4

- i. See Table XXXIX, page 74.
- ii. See Table XL, page 75.
- iii. See Table XLI, page 76.
- iv. See Table XLII, page 77.
- v. See Table XXXIX, page 74.
- vi. See Table XL, page 75.
- vii. See Table XLI, page 76.
- viii. See Table XLII, page 77.

10.(a) While the E pupils of Port Elizabeth show a slight superiority over the E pupils of Cape Town in all the tests(i) the means of the scores of the Ea pupils of Port Elizabeth fall below those of the scores of the corresponding group in Cape Town, in all the tests.

(b) In Total Vocabulary and Vocabulary Scores the difference between the means is not significant, the critical ratio being 1.2 and 0.4 respectively.

(c) In Grammar and Vocabulary + Grammar the chances are 50 and 138 respectively in 1,000 that the difference between the means of the scores is not significant, since the critical ratio is 2.9 and 2.2 respectively.

The results are as follows:

Total Vocabulary:(ii)

Ea(C.T.)pupils and Ea(P.E.)pupils, $79.59 - 77.96 = 1.63$; c.r. 1.2

Vocabulary:(iii)

Ea(C.T.)pupils and Ea(P.E.)pupils, $75.81 - 75.25 = 0.56$; c.r. 0.4

Grammar:(iv)

Ea(C.T.)pupils and Ea(P.E.)pupils, $74.37 - 68.83 = 5.54$; c.r. 2.9

Vocabulary + Grammar:(v)

Ea(C.T.)pupils and Ea(P.E.)pupils, $75.10 - 72.04 = 3.06$; c.r. 3.2

11.(c) While the mean of the scores of the A pupils of Cape Town is slightly higher than that of the scores of the corresponding group in Port Elizabeth, in the case of Grammar, and to a significant degree in Total Vocabulary, Vocabulary, and Vocabulary + Grammar,(vi) the means of the scores of the Ae pupils of Cape Town fall those of the scores of the corresponding group in Port Elizabeth, in all the tests, though the difference is not significant in any of the cases. The results follow:

-
- i. See No.8, page 116.
 - ii. See Table XXXIX, page 74.
 - iii. See Table XL, page 75.
 - iv. See Table XLI, page 76.
 - v. See Table XLII, page 77.
 - vi. See No. 9, page 116.

Total Vocabulary:(i)

Ae(P.E.)pupils and Ae(C.T.)pupils, $81.77 - 80.4 = 1.37$; c.r. 1.3

Vocabulary(ii):

Ae(P.E.)pupils and Ae(C.T.)pupils, $72.92 - 72.65 = 0.27$; c.r. 0.2

Grammar:(iii)

Ae(P.E.)pupils and Ae(C.T.)pupils, $79.46 - 78.5 = 0.96$; c.r. 0.4

Vocabulary + Grammar:(iv)

Ae(P.E.)pupils and Ae(C.T.)pupils, $76.19 - 75.58 = 0.61$; c.r. 0.4

12. A comparison between the average scores of the EC pupils and the AC pupils reveals the following:

Vocabulary:(v)

AC pupils and EC pupils, $92.7 - 92.47 = 0.23$; c.r. 0.3

Grammar:(vi)

AC pupils and EC pupils, $96.67 - 96.13 = 0.54$; c.r. 1.0

Vocabulary + Grammar:(vii)

AC pupils and EC pupils, $94.68 - 94.33 = 0.35$; c.r. 0.8

In view of the fact that there is very little difference between the average scores in their respective home language in the case of AC pupils and EC pupils, it will be interesting to compare the average scores of the A groups with those of the E groups.

(a) In Total Vocabulary and Vocabulary the E pupils obtain a higher average score than the A pupils. In Vocabulary the difference between the means of the scores is significant, the critical ratio being 7.2. This is probably due to the fact that the A pupils knew 3.4 per cent of the test words in their second language and not in their mother-tongue, (viii) while the E pupils knew 0.075 per cent of such words.(ix)

In the case of Total Vocabulary the chances are 22 in 1,000 that the difference is not significant, the critical ratio being 3.4

-
- | | |
|------------|---------------------------|
| i. | See Table XXXIX, page 74. |
| ii. and v. | See Table XL, page 75. |
| iii. " vi. | See Table XLI, page 76. |
| iv " vii. | See Table XLII, page 77. |
| viii. | See Table LXXI, page 108 |
| ix. | See Table LXX, page 107. |

(b) In Grammar the average score of the A pupils is higher than that of the E pupils, but the difference cannot be considered as significant as the critical ratio is exactly 2.

(c) The E pupils obtain a higher average score than the A pupils in Vocabulary + Grammar. The chances are 59 in 1,000 that the difference between the means of the scores is not significant, the critical ratio being 2.8.

Total Vocabulary:(i)

E pupils and A pupils, $82.74 - 79.99 = 2.75$; c.r. 3.4

Vocabulary:(ii)

E pupils and A pupils, $82.66 - 76.56 = 6.10$; c.r. 7.2

Grammar:(iii)

A pupils and E pupils, $88.68 - 86.88 = 1.80$; c.r. 2

Vocabulary + Grammar:(iv)

E pupils and A pupils, $84.77 - 82.62 = 2.15$; c.r. 2.8

13. A comparison between the means of the scores of the Ea and the Ae pupils reveals the following:

Total Vocabulary:(v)

Ae pupils and Ea pupils, $81.17 - 78.82 = 2.35$; c.r. 2.7

Vocabulary:(vi)

Ea pupils and Ae pupils, $75.55 - 72.80 = 2.75$; c.r. 2.7

Grammar:(vii)

Ae pupils and Ea pupils, $79.04 - 71.76 = 7.28$; c.r. 4.7

Vocabulary + Grammar:(viii)

Ae pupils and Ea pupils, $75.91 - 73.66 = 2.25$; c.r. 2.0

(a) While the E pupils obtain a higher average score than the A pupils in Total Vocabulary, the average score of the Ea pupils falls below that of the Ae pupils. However, the chances are 69 in 1,000 that the difference is not significant, the critical ratio being 2.7

(b) While the average score of the A pupils falls below that of the E pupils in Vocabulary + Grammar, the Ae pupils obtain a higher average score than the Ea pupils. However, the difference cannot be considered as significant, the critical ratio being exactly 2.

i. and v. See Table XXXIX, page 74.

ii. " vi. See Table XL, page 75.

iii. " vii. See Table XLI, page 76.

iv and viii. See Table XLII, page 77.

(c) In Vocabulary the Ea pupils obtain a higher average score than the Ae pupils. However, the chances are 69 in 1,000 that the difference is not significant, the critical ratio being 2.7.

(d) In Grammar the Ae pupils obtain a higher average score than the Ea pupils. The difference between the means of the scores is significant, the critical ratio being 4.7.

(c) CONTAMINATION.

1. Language contamination was found in all the tests and among all the groups.(i)

2. Where the social-economic status is lower, the degree of contamination is higher. The difference between the means of the Contamination Scores in the various tests respectively, in the case of the E and the EC pupils, is as follows:

Vocabulary:(ii)

E pupils and EC pupils, $1.01 - 0.20 = 0.81$; c.r. 10.2

Grammar:(iii)

E pupils and EC pupils, $6.10 - 1.07 = 5.03$; c.r. 10.3

Vocabulary + Grammar:(iv)

E pupils and EC pupils, $3.49 - 0.67 = 2.82$; c.r. 10.9

In every one of the above-mentioned cases the difference is significant.

In the case of the A and the AC pupils the difference between the means of the Contamination Scores in the various tests respectively, is as follows:

Vocabulary:(v)

A pupils and AC pupils, $4.54 - 0.5 = 4.04$; c.r. 19.3

Grammar:(vi)

A pupils and AC pupils, $5.70 - 2.23 = 3.47$; c.r. 7.7

Vocabulary + Grammar:(vii)

A pupils and AC pupils, $5.12 - 1.37 = 3.75$; c.r. 15.7

i See Distribution Tables XLV - LXI, pp. 81 - 91, and Contamination Scores pp. 79 and 80.

ii and v. See Table LXV, page 97.

iii " vi. See Table LXVI, page 98.

iv " vii. See Table LXVII, page 99.

Here also the difference is significant in every case, but as in No(b) Performance: No.1(i) it will be incorrect to argue that the results were influenced by the social-economic status alone, because 100 per cent of the A pupils were selected from city schools, while 80 per cent of the AC pupils attended country schools.(ii) The difference may therefore be due either (a) to the social-economic condition, or (b) to the difference between town and country, or (c) in part to each of (a) and (b).

3. A higher degree of contamination is found in the language of bilingual pupils than in that of unilingual pupils. The difference between the means of the Contamination Scores in the various tests respectively, in the case of unilingual and bilingual pupils, is as follows:

Vocabulary:(iii)

Ea pupils and E pupils, $1.90 - 1.01 = 0.89$; c.r. 8.2

Ae " " A " , $6.39 - 4.54 = 1.85$; c.r. 5.9

Grammar:(iv)

Ea pupils and E pupils, $16.86 - 6.1 = 10.76$; c.r. 12.7

Ae " " A " , $13.35 - 5.7 = 7.65$; c.r. 7.8

Vocabulary + Grammar:(v)

Ea pupils and E pupils, $9.38 - 3.49 = 5.89$; c.r. 13.3

Ae " " A " , $9.98 - 5.12 = 4.86$; c.r. 9.0

In every one of the above cases the difference is significant.

4. Although individual differences may occur either way, there is very little difference in the degree of contamination in the language of unilingual boys and girls. The difference between the means of the Contamination Scores in the various tests respectively, in the case of unilingual boys and girls, is as follows:

Vocabulary:(vi)

E boys and E girls, $1.03 - 1.0 = 0.03$; c.r. 0.2

A " " A " , $4.58 - 4.5 = 0.08$; c.r. 0.2

i. See page 112.

ii. See page 24.

iii. and vi. See Table LXV, page 97.

iv. See Table LXVI, page 98.

v. See Table LXVII, page 99.

Grammar:(i)

E girls and E boys, $6.45 - 5.75 = 0.7$; c.t. 0.8

A " " A " , $6.0 - 5.4 = 0.6$; c.r. 0.9

Vocabulary + Grammar:(ii)

E girls and E boys, $3.6 - 3.39 = 0.21$; c.r. 0.5

A " " A " , $5.25 - 4.99 = 0.26$; c.r. 0.7

According to the above results the boys exhibit a slightly higher degree of contamination than the girls, as far as Vocabulary is concerned, while in Grammar and in Vocabulary + Grammar the girls exhibit a higher degree of contamination than the boys; however, in no case is the difference significant.

5. The difference between the means of the Contamination Scores in the various tests respectively, in the case of bilingual girls and boys, is as follows:

Vocabulary:(iii)

Ea girls and Ea boys, $1.96 - 1.86 = 0.10$; c.r. 0.6

Ae " " Ae " , $6.47 - 6.32 = 0.15$; c.r. 0.3

Grammar:(iv)

Ea girls and Ea boys, $19.04 - 15.07 = 4.03$; c.r. 2.9

Ae " " Ae " , $15.52 - 11.52 = 4.00$; c.r. 2.1

Vocabulary + Grammar:(v)

Ea girls and Ea boys, $10.5 - 8.46 = 2.04$; c.r. 2.8

Ae " " Ae " , $11.0 - 9.12 = 1.88$; c.r. 1.8

According to the above data, the bilingual girls exhibit a higher degree of contamination than the boys. In the case of Vocabulary of the Ea and the Ae pupils, and Vocabulary + Grammar of the Ae pupils, the difference is definitely not significant, while in the case of the Grammar of the Ea and the Ae pupils and the Vocabulary + Grammar of the Ea pupils, the chances that the difference is not significant are 50, 157, and 59 respectively in 1,000, the critical ratio being 2.9, 2.1 and 2.8 respectively.

-
- i. See Table LXVI, page 98.
 - ii. See Table LXVII, page 99.
 - iii. See Table LXV, page 97.
 - iv. See Table LXVI, page 98.
 - v. See Table LXVII, page 99.

6. A comparison between the Contamination Scores of the E pupils of Port Elizabeth and those of the E pupils of Cape Town reveals that:

(a) Contamination in Vocabulary is significantly higher in the case of the E pupils of Port Elizabeth than in that of the E pupils of Cape Town.

(b) The Grammar and the Vocabulary + Grammar of the E pupils of Cape Town show a slightly higher degree of contamination than those of the E pupils of Port Elizabeth. In neither case is the difference significant. The results follow:

Vocabulary:(1)

E(P.E.)pupils and E(C.T.)pupils, $1.38 - 0.65 = 0.73$; c.r. 6.5

Grammar:(11)

E(C.T.)pupils and E(P.E.)pupils, $6.55 - 5.65 = 0.9$; c.r. 1.0

Vocabulary + Grammar:(111)

E(C.T.)pupils and E(P.E.)pupils, $3.6 - 3.39 = 0.21$; c.r. 0.5

7. In the case of the Contamination Scores of the A pupils of Port Elizabeth and of Cape Town, the results reveal the following:

(a) The Grammar of the A pupils of Cape Town and Port Elizabeth exhibits approximately the same degree of contamination, the mean of the Cape Town group being very slightly higher than that of the corresponding Port Elizabeth group.

(b) In ^{the} Vocabulary and in ^{the} Vocabulary + Grammar of the A pupils of Port Elizabeth a higher degree of contamination is found than in those of the A pupils of Cape Town. In the case of Vocabulary the difference between the means is definitely significant, the critical ratio being 8.5, while in the case of the complete language tests, i.e. Vocabulary + Grammar, the chances are 59 in 1,000 that the difference between the means is not significant, the critical ratio being 2.8. The following reasons may probably account for the higher degree of contamination exhibited by the A pupils of Port Elizabeth in Vocabulary and Vocabulary + Grammar:

1. See Table LXV, page 97.
 11. See Table LXVI, page 98.
 111. See Table LXVII, page 99.

1. Although both groups of A pupils knew certain words in the Vocabulary of their second language and not in their first, the A pupils of Cape Town used 2.5 per cent, whereas the A pupils of Port Elizabeth used 4.3 per cent, of such words.(i)

ii. As has been explained on page 110, the social-economic status of the A pupils tested in Cape Town and in Port Elizabeth ^{respectively} cannot be considered to be the same; consequently, as has been concluded in No.2(ii) the degree of contamination is bound to vary.(iii)

The results follow:

Vocabulary:(iv)

A(P.E.)pupils and A(C.T.)pupils, $5.78 - 3.3 = 2.48$; c.r. 8.5

Grammar:(v)

A(C.T.)pupils and A(P.E.)pupils, $5.9 - 5.5 = 0.4$; c.r. 0.6

Vocabulary + Grammar:(vi)

A(P.E.)pupils and A(C.T.)pupils, $5.64 - 4.6 = 1.04$; c.r. 2.8

8. The Vocabulary of the Ea pupils of Port Elizabeth reveals a higher degree of contamination than that of the Ea pupils of Cape Town, though in none of the cases can the difference between the means be said to be significant. In the Vocabulary, the Grammar, and the Vocabulary + Grammar, the chances that the difference between the means is not significant are 22,157 and 105 respectively in 1,000, the critical ratio being 3.4, 2.1 and 2.4 respectively. The results follow below.

Vocabulary:(vii)

Ea(P.E.)pupils and Ea(C.T.)pupils, $2.21 - 1.63 = 0.58$; C.r. 3.4

Grammar:(viii)

Ea(P.E.)pupils and Ea(C.T.)pupils, $18.42 - 15.48 = 2.94$; c.r. 2.1

Vocabulary + Grammar:(ix)

Ea(P.E.)pupils and Ea(C.T.)pupils, $10.31 - 8.56 = 1.75$; c.r. 2.4

9. A comparison between the Scores of the Ae pupils of P.E. and those of the Ae pupils of C.T. reveals the following:

-
- i. See Table LXXI, page 108.
 ii. See page 120.
 iii. For Performance Scores see No.9(a), page 116.
 iv. and vii. See Table LXV, page 97.
 v. " viii. See Table LXVI, page 98.
 vi. " ix. See Table LXVII, page 99.

Vocabulary:(i)

Ae(P.E.)pupils and Ae(C.T.)pupils, $7.35 - 5.15 = 2.2$; c.r. 4.4

Grammar:(ii)

Ae(C.T.)pupils and Ae(P.E.)pupils, $15.0 - 12.08 = 2.92$; c.r. 1.6

Vocabulary + Grammar:(iii)

Ae(C.T.)pupils and Ae(P.E.)pupils, $10.33 - 9.71 = 0.62$; c.r. 0.6

These results show that:

(a) The Vocabulary of the Ae pupils of Port Elizabeth reveals a higher degree of contamination than that of the Ae pupils of Cape Town. The difference between the means is significant, the critical ratio being 4.4.

(b) In the Grammar and the Vocabulary + Grammar of the Ae pupils of Cape Town a slightly higher degree of contamination is found. In neither case is the difference between the means significant, the critical ratio being 1.6 and 0.6 respectively.

10. A comparison between the Contamination Scores of the A and the E pupils shows that:

(a) There is a significantly higher degree of contamination in the Vocabulary and in the Vocabulary + Grammar of the A pupils than in those of the E pupils. In the Grammar of the E pupils a slightly higher degree of contamination is found than in that of the A pupils. the difference is definitely not significant.

Vocabulary:(iv)

A pupils and E pupils, $4.54 - 1.01 = 3.53$; c.r. 19.3

Grammar:(v)

E pupils and A pupils, $6.1 - 5.7 = 0.4$; c.r. 0.7

Vocabulary + Grammar:(vi)

A pupils and E pupils, $5.12 - 3.49 = 1.63$; c.r. 5.4

11. A comparison between the means of the Contamination Scores in respect of the Ea and the Ae pupils shows that:

(a) A significantly higher degree of contamination is found in the Afrikaans Vocabulary of the Ae pupils than in the English Vocabulary of the Ea pupils.

(b) The Grammar of the first language of the Ea pupils reveals a higher degree of contamination than the first language of the Ae pupils. The chances are 43 in 1,000 that the difference between the means is not significant, the critical ratio being 3.

i. and iii. See Table LXV, page 97.
 ii. " iv. See Table LXVI, page 98.
 iii. " vi. See Table LXVII, page 99.

(c) The complete language test, i.e. Vocabulary + Grammar, of the Ae pupils reveals a very slightly higher degree of contamination than that of the Ea pupils.

The difference between the means of the Contamination Scores in the various tests respectively, in the case of ^{the}Ae and ^{the}Ea pupils, is as follows:

Vocabulary:(i)

Ae pupils and Ea pupils, $6.39 - 1.9 = 4.49$; e.r. 16.3

Grammar:(ii)

Ea pupils and Ae pupils, $16.86 - 13.35 = 3.51$; c.r. 3

Vocabulary + Grammar:(iii)

Ae pupils and Ea pupils, $9.98 - 9.38 = 0.6$; c.r. 1.0

12. From Nos. 10 and 11 above it would appear that:

- (a) There is a higher degree of contamination in the mother-tongue of Afrikaans-speaking pupils than in that of English-speaking pupils, whether unilingual or bilingual, as far as ^{the}Vocabulary and the complete language test, i.e. Vocabulary + Grammar, ^{are} concerned. A probable explanation is that the Afrikaans-speaking groups of pupils, whether unilingual or bilingual, know a higher percentage of words in their second language and not in their home language than the corresponding English-speaking groups. ^(iv)
- (b) On the other hand, a higher degree of contamination is found in the Grammar of the mother-tongue of the English-speaking groups than in that of the corresponding Afrikaans-speaking groups. In the case of the E pupils and the A pupils the difference between the means is very slight, while in the case of the Ea pupils and the Ae pupils the difference is higher.

A probable reason is that Afrikaans has a simpler grammatical structure than English.

- i. See Table LXV, page 97.
 ii. See Table LXVI, page 98.
 iii. See Table LXVII, page 99.
 iv. See Tables LXX and LXXI, page s 107 and 108.

LIMITATIONS.

The writer set out to draw up a language test suitable for school beginners of the age group 6+. The suitability of the test which he drew up is discussed on pages 109 - 111.

He used this test in order to determine the language performance of pupils beginning school. The results of this performance are discussed on pages 112 - 120.

He also measured the extent of contamination exhibited by the various test groups.(1)

But although the investigator has determined that language contamination exists among 6 plus year old school beginners, and that the degree of contamination can be measured, it does not fall within the scope of this investigation to suggest remedial measures.

It will be an interesting investigation which has for its aim the drawing up of a list of the most common examples of language contamination. Such a list will be of help to educationists who are trying to eradicate vulgarisms and inaccuracies from either language. Partly the same test material can be used, but additions will have to be made in order to have a more comprehensive test.

This, however, is another undertaking.

(1) See pages 120 - 126.

BIBLIOGRAPHY.

- Theal: History of South Africa, 1897, Part 1.
- Theal: " " " " , 1897, " 11.
- Walker, E.A.: A History of South Africa, 1935.
- Colenbrander, H.T.: De Afkomst der Boeren, 1902.
- Bosman, Dr.D.B.: Oor die Ontstaan van Afrikaans, 1928.
- Hesseling, D.C.: Het Afrikaans, 1923.
- von Wielligh, C.R.: Ons Geselstaal, 1925.
- von Wielligh, C.R.: Eerste Skrywers, 1922.
- Gedenkboek van die Genootskap van Regte Afrikaners, 1926.
- Van Niekerk, Dr. Lydia: De Eerste Afrikaanse Taalbeweging en Letterkundige Voortbrengselen, 1920.
- Pienaar, Dr. E.C.: Taal en Poësie van die Tweede Afrikaanse Taalbeweging, 1926.
- De Waal, J.H.H.: My Herinnerings van Ons Taalstryd, 1932.
- Aucamp, Dr.A.J.: Bilingual Education and Nationalism, 1926.
- Barnouw, A.J.: Language and Race Problems in S.A., 1934.
- Malherbe, Dr.E.G.: Education in South Africa, 1925.
- Scholtz, Dr.J. duP.: Die Afrikaner en Sy Taal, 1939.
- Rousseau, Dr. H.J.: Afrikaans en Engels, 1937.
- Haarhoff, Prof. T.J.: The Stranger at the Gate, 1938.
- Malherbe, Dr.D.F.: Afrikaanse Spreekwoorde en Verwante Vorme, 1924.
- Nienaber, G.S.: Die Afrikaanse Beweging 1, 1931.
- Welsh in Education and Life, 1927.
- Die Huisgenoot, 16 Maart 1945; 30 Maart 1945; en 6 April 1945.
- Schmidt, C.H.: The Language Medium Question, 1926.
- Schmidt, C.H.: Onderzoek na die Waarde van Afrikaans as Medium van Onderwys vir Afrikaanssprekende leerlinge.
- West, Michael: Bilingualism, 1926.
- Kuitert, R. en v.d.Velde, L.: Een Woordenschatonderzoek by zesjarige Kinderen; De Nieuwe Taalgids, 31ste Jaargang; 3de Aflevering.
- Educational Adaptations, 1937.

- Williams, J.G.: Mother-Tongue and Other-Tongue.
- Coetzee, J.Chr.: Eksperimentele Opvoedkundige Studies, 1926.
- Hamaide, A.: The Decroly Class, Dent, London.
- Binet and Simon: The Development of Intelligence in Children, 1916.
- Burt, C.: Mental and Scholastic Tests, 1921.
- Saer, D.J.; Smith, F., and Hughes, J.: The Bilingual Problem, 1924.
- Ballard, P.B.: Mental Tests, 1923.
- Ballard, P.B.: The New Examiner, 1922?.
- Boyd: Measuring Devices in Composition, Spelling and Arithmetic, 1922.
- Sandiford, P.: Educational Psychology.
- Terman, L.M.: The Intelligence of School Children, 1921.
- Green and Jorgensen: The Use and Interpretation of Elementary School Tests, 1935.
- Paulu: Diagnostic Testing and Remedial Teaching, 1924.
- Garrett, H.E.: Statistics in Psychology and Education, 1938.
- Lindquest, E.F.: Statistical Analysis in Educational Research, 1940
-